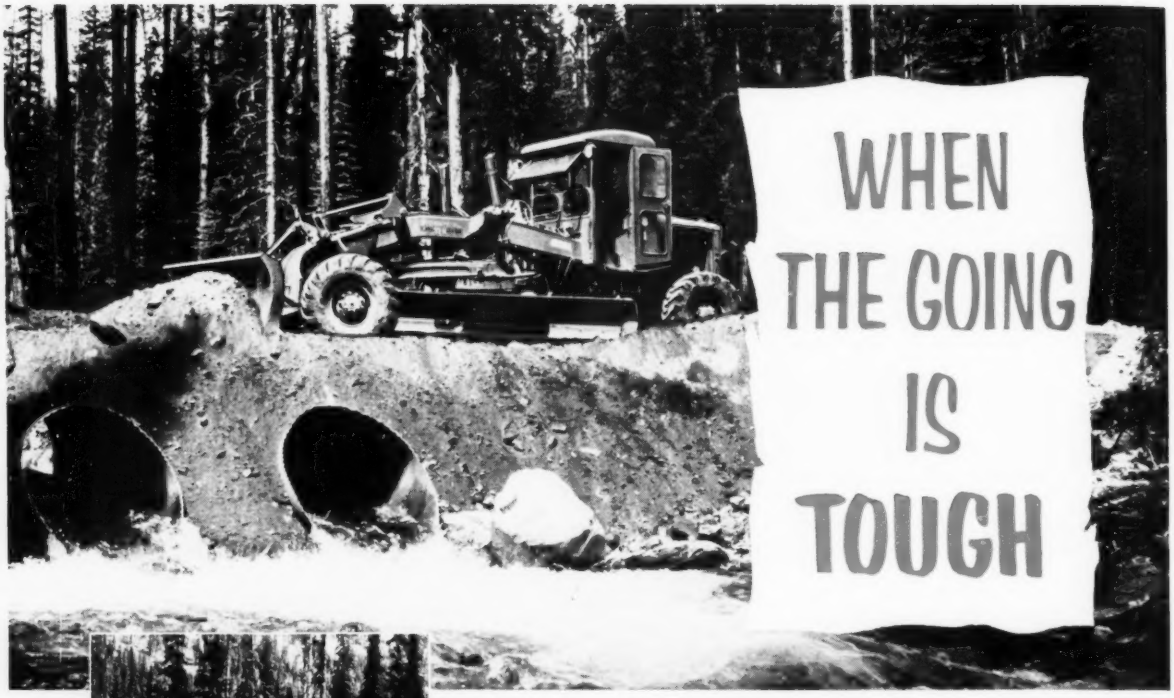
American
FORESTS
NOVEMBER 1954 50 CENTS

WHAT IS THE FUTURE OF SAWLOGS? — Pages 7 and 24



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Weyerhaeuser Timber Company

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Contents

THE AFA

The American Forestry Association, publishers of AMERICAN FORESTS, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and their part in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

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Letters

Reply to Mr. Woodward

EDITOR:

Your presentation of both sides of the National Forest Grazing Bill controversy in the July issue has been a distinct public service. Now that the bill (S.2548 as amended) has been thumpingly turned down by Congress in spite of desperate last minute efforts to make it a "rider" on the Agricultural bill, it is time to review the issues involved. Hugh Woodward's statement in the August AMERICAN FORESTS speaks only for a tiny fraction of the conservationists who were somehow convinced that the bill wasn't so bad after all.

The united opposition of conservationists was not "unreasonable", but rather based on some excellent historical analysis. Stated baldly, the motives of the proponents have not changed in spite of all the efforts to dress up the wolf in sheep's clothing. Their strategy has been smoothed by high pressure public relations specialists and a sugar coating of conservation terminology. But the fact remains that in the operation of the Taylor Grazing Act we have many of the same features which this lobby proposes for national forests and the sad condition of the Western public ranges is proof enough that more of the same is definitely *not* conservation. Range improvements should be handled by the Forest Service under the same procedures now provided under the Knutson-Vandenberg Act for forest management.

Two essential features of this bill explain the reasons why the cowboys whooped it up and rode so hard to get it passed. It opens the way to the establishment of privately financed improvements on public lands and then the establishment of private rights for a few users of the forests belonging to all of us. The bill also makes possible court review of administrative (conservation) measures and thus might tie up indefinitely livestock reductions in the courts for years as the range deteriorates. By encouraging monopoly by a few large well financed users it would squeeze out many small bidders for grazing privileges. No matter how this measure is amended upward to answer the present criticisms, there is nothing to prevent future pressure groups from amending it downward to the detriment of the national forests. Senator Welker stated as much last March when the bill was slipped through a five-man Senate.

The Forest Conservation Society is happy to note that the American Forestry Association in its program for American Forestry included the statement "Permits to graze on public lands should be considered a privilege and not a legal right." From this it is presumed that S. 2548 would fail of AFA endorsement.

We might also take a look at the new technique of the modern "land grabbers" who seek not outright title in public lands with heavy investment, interest and tax costs. Rather, they prefer the simpler and cheaper and subtler technique of transfer of private rights. It has its origin in Minnesota where a "Long Term Sustained Yield" timber bill was presented to the legislature granting exclusive cutting privileges to a few large concerns. Only the righteous wrath of thousands of indepen-

(*Turn to page* 4)

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Allis-Chalmers combination of power, strength and dependability in the AD-40 Motor Grader assures faster, better construction and maintenance.

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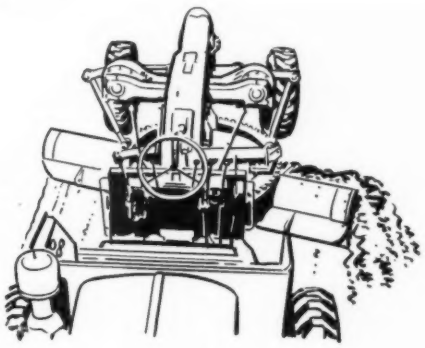

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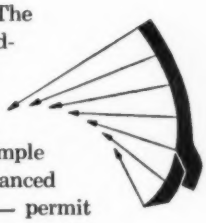

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Letters

(*From page 2*)

dent timber farmers whose livelihood would have been jeopardized halted this proposal. Reasonable conservationists believe in wise use of our natural resources and they are coming to believe that widespread use by large numbers of small cattlemen, loggers and others makes for a far healthier economy than the granting of special privileges to the few who don't need them anyway. It is unfortunately true that those who benefit the most financially from conservation programs seldom take the lead in promoting those measures which are the greatest benefit to the public but rather seem only to be concerned with those which will increase their own already well established prosperity.

It would be refreshing indeed to find at least some of these people actively supporting the conservation movement because they know that it stands for "the greatest good for the greatest number over the longest time."

Charles H. Stoddard
Executive Secretary
Forest Conservation Society of America
Washington 7, D. C.

Do We Lack Imagination?

EDITOR:

I am enclosing my ballot on The American Forestry Association program. I approve of the program but am not overly enthusiastic about it. My lack of enthusiasm is due to the major hypothesis under which the program was considered, to wit: "The more urgent and critical steps in American forestry have been taken. The actions now necessary fall more into the category of long-range planning and adjustments, consolidating gains, filling gaps, and improving methods."

I certainly do admit that we have established a good framework for the development of forestry in America. I still feel, however, that much of our forestry effort is diffuse, lacking in realism and not well adjusted to goals.

For example, I feel that we need to establish the principle of zoning forest land for intensive use and extensive use. I feel that we should recognize the importance of placing heavy investments on denuded lands or poor quality stands that occupy the best quality lands. This is more important for long-run future production than rushing into our few remaining virgin stands to harvest the cream of the crop when we have no such timber coming along for future use. We should stretch our virgin supplies instead of hastening to gobble them up as rapidly as possible.

There are other sections with which I have mild disagreement, particularly those on education and research. It seems to me that these show a lack of understanding of the magnitude of the forestry effort that confronts us if we are to make our forest lands support our economy in the best possible manner.

Given the second Higgins Lake Conference as our starting point, the program that has been developed is all that could be presented. I feel, however, that our leaders in forestry are considerably lacking in imagination if the best they can propose is merely a mild improvement on the status quo.

Section IV-E, on public education, illustrates one of my major criticisms of the program. We advocate use of all sorts of media to educate the public but do not say what education we are trying to provide or what its goals should be. Public education in forestry today does not give the school children nor their teachers a realistic understanding of the potentialities of our forests and of their many important services to the nation. We need more imaginative thinking and analysis by our leaders. To expect a congressional committee to do such thinking seems to me completely out of the question. Without critical thinking on patterns of ownership and their relationship to human freedoms we can build no sound long range policy.

If small land holdings are uneconomic in size for good management, why not face the fact frankly and formulate policy that will minimize the damage to be done by small holders? If small sawmills are wastefully operated and follow poor woods practice, why not face that fact also? If markets are poorly organized through much of the East and South so that timber potentially of cabinet grade is used for sulphate pulp, let's face that one.

One has but to visit almost any logging and sawmill operation to realize that we are far from making the best of our current timber supply. In the wood processing plants the situation is even worse. Yet, unless we do get the timber we produce into the most valuable product, we cannot pay the landowner an adequate return for the use of his land to grow timber.

This letter is already overly long, but I think it will serve to express to you my lack of real enthusiasm for the American Forestry program. Actually there is little in it to which I object but I find relatively little in it that seems really forward looking. It just about catches up with where we are today. The mission of an agency advocating a program seems to me as to be thinking in terms of the long range future, that is, 25 to 50 years ahead.

I have just been reading the initial draft of Kaufert's report on forest research. He advocates a six-fold increase in expenditures for forest research by the year 1978. I see no evidence in the program of The American Forestry Association that it recognizes the need for any program in forestry expanding at such a rate.

Hardy L. Shirley
Dean, College of Forestry
Syracuse, N. Y.

Conservation Caravan

EDITOR:

Mr. Nichols and I want you, The American Forestry Association, and those who planned the caravan to know how much we enjoyed our trip and, as always, the convention was fine.

Again our best wishes for you and The American Forestry Association.

Mary Jane Nichols
Putnam County
Carmel, N. Y.

EDITOR:

What a wonderful time we all had!

I am sure there are many among the group, who hope as we do, that a similar trip to other parks and parts of the country might be organized.

We fully agree with you that there must be many thousands of people interested in wildlife, nature and conservation, who would join the Association if they were acquainted with its objectives and activities.

Charles M. Addis
West Hill
Boonton, N. J.

By ALBERT G. HALL

THE U.S. FOREST SERVICE WILL OBSERVE ITS 50TH ANNIVERSARY IN 1955, and according to Forest Service Chief Richard E. McArdle the observance will be an occasion "for reviewing 50 years of accomplishments, not of the Forest Service alone, but of the states, the forest industries, forestry schools, conservation organizations, and all others." Another half-century mark in forestry was observed in 1950 when the Society of American Foresters celebrated its golden anniversary. This year, the Ohio Agricultural Experiment Station marked the 50th anniversary of its department of forestry; and Iowa State College likewise marked the completion of the 50th year of its forestry department. Forerunner of these historic occasions was The American Forestry Association which in 1950 passed the three-quarter century mark. The progress of forestry throughout the years has not been a steady pace, but rather a steady acceleration of pace. Each year sees vastly more accomplishment than the last. The Forest Service anniversary provides an opportunity, as the Chief of the Forest Service states: "To make the American people aware of the progress in forestry. . . . and to encourage greater progress in forestry — for the national good — in the future."

A NATIONAL WATERSHED CONGRESS TO BE HELD IN WASHINGTON, D.C. on December 6 and 7, takes on special significance in view of the passage by the Second Session of the 83rd Congress of Public Law 566, the "Watershed Protection and Flood Prevention Act." More popularly known as "the small watersheds act," this Administration measure was widely supported by conservation groups throughout the country as a means of obtaining wise use and development of small watersheds under local initiative. It authorizes the Secretary of Agriculture to cooperate with states and local agencies in the planning and carrying out of works of improvement for soil conservation. A considerable portion of the agenda of the forthcoming watershed congress will be devoted to local and national implementation of Public Law 566. Since, under the law, federal assistance must be requested by local agencies before the Department of Agriculture may participate, the watershed congress will discuss ways to develop local watershed agencies and to stimulate them into meeting the participation requirements of the law. The Department of Agriculture is now working on the regulations under which the law will be administered. One item on the watershed congress agenda will include suggestions for improving Public Law 566 through further legislation.

THE PRESIDENT'S CABINET COMMITTEE ON WATER RESOURCES POLICY, appointed last May, is now readying a preliminary report reviewing existing federal policies and legislation in the field of water resources. Chairman of the committee is Douglas McKay, Secretary of the Interior. Other members are the Secretaries of Defense and Agriculture, Charles E. Wilson and Ezra Taft Benson, respectively. Principal purpose of the policy review is eventually to resolve conflicts among the programs of the various agencies involved in the water resources programs.

THE NEW UNDER SECRETARY OF THE INTERIOR, CLARENCE A. DAVIS, in his formal remarks in acceptance of the post, re-emphasized the Administration's policy toward

(Turn to next page)

natural resource management. He pointed out the importance of wise use of all natural resources, and expressed the belief that despoiling or wasting resources "cannot be tolerated." But he added, "Certainly conservation and federal ownership are not synonymous terms. Perpetual federal ownership may well represent stagnation." Davis, who replaced Ralph Tudor as Under Secretary on September 1, had been Solicitor for the Department of the Interior.

A NEW ASSISTANT SECRETARY OF THE DEPARTMENT OF AGRICULTURE arrives on the scene this month. Ervin L. Peterson, since 1943 the director of Oregon's Agricultural Department, is replacing J. Earl Coke who is returning to California as director of agricultural extension. Both Coke, who came to Washington, D.C. on a temporary basis to assist Secretary Ezra Taft Benson in streamlining the Department of Agriculture, and Peterson are reported to be kindred spirits so far as their philosophies of government are concerned. Both believe in the minimum of federal interference or direction in the agricultural and forestry affairs of the states and individuals. Both are firm believers in states' rights.

THE BUSINESS ASPECTS OF NATIONAL FOREST TIMBER SALES are now undergoing a study by a private management engineering firm. The timber sales activity of the U.S. Forest Service has evolved, over the past half-century, from a few small sales here and there to a major business undertaking involving every timber producing area of the country. It has grown from virtually nothing to a business of $60 million to $70 million or more annually. It can become still larger as more of the timber in need of harvest is placed on the market and as timber access roads are built. The timber sales policies of the Forest Service have never had a major overhauling; they have been altered as the task expanded. As in many other government businesses, what started out as a relatively small enterprise is now "big business," and procedures involving estimating, appraisal, scaling, etc. must be re-examined to see if they still fit the pattern of the current enterprise.

THE REORGANIZATION OF THE BUREAU OF LAND MANAGEMENT is nearing completion, a bit ahead of schedule. The three western area offices have been established, and state offices of the Bureau have been organized to serve the 11 western states. An eastern district office has been set up in Washington, D.C. Gradually the work of the Bureau has been transferred from the Washington office and the area offices to the state offices. Much of the authority that formerly rested solely with the central office has been redelegated closer to the scene of operations. Still pending are changes in policies, standards and procedures which have been recommended by a special task force appointed by the Secretary of the Interior. It is expected that new regulations dealing with timber sales and rights-of-way for timber access, now being reviewed in the field, will be issued by the first of the new year.

TIMBER AND MINERALS ARE TO BE RESERVED UNDER THE SMALL TRACT LAW which allows the sale or lease of tracts not exceeding five acres for home, cabin, camp, health, convalescent sites or recreational or business sites. Regulations issued by the Department of the Interior do not permit lessees to remove any timber without permission of the Bureau of Land Management. Permission will be given only for such timber removal as is necessary to clear areas for improvements. No provisions have yet been made for prospecting or for the development of minerals on the leased sites, except for fissionable materials in Florida.

SOIL CONSERVATION EXPENDITURES ARE DEDUCTIBLE, up to 25 percent of gross farming income, for tax purposes, under the new tax code. The farmer has his choice of capitalizing soil conservation expenses or taking the straight reduction. If his soil conservation expenses exceed 25 percent of gross income in any one year the remainder may be carried over to the next year and succeeding years when another 25 percent maximum may be deducted. Items which may be included in the deductions are leveling, grading, terracing, water diversion or drainage, protection of water courses, and removal of brush and planting of windbreaks. The farmer must make his choice between capitalization and straight deduction, and such election is final unless a change is authorized by the Commissioner of Internal Revenue. Any permanent soil conservation installations, subject to depreciation, must be capitalized.

EDITORIAL

Today

Correction of widespread abuses under existing mining laws on our national forests is one of the fighting planks in AFA's Program for American Forestry. While the AFA believes that the legitimate miner should be encouraged, it deplores the efforts by individuals to use the mining laws as a means of acquiring government lands for purposes other than mining and believes that these practices should be stopped. To stop them, the AFA urges that Congress revise the federal mining laws, largely unchanged since 1872, to prevent their abuse by claimants who use their claims to tie up more valuable timber or other surface resources than they legitimately need to develop the minerals.

That the traffic in questionable claims reflects unfavorably on the legitimate miner is a fact readily recognized by the mining industry. It too "deplores" attempts to obtain mining rights under mining locations which lack validity and good faith. At the same time, the industry gives the impression of being reluctant to go to the root of the problem—the fact that the antiquated mining laws makes it both difficult and costly to administer claims on the forests. Nor do the protestations by some miners that more efficient administration by the Forest Service "would take care of the situation" completely jell.

There has to be more to it than that and there is. One westerner close to the mining industry possibly put his finger on it when he said, "Yes, we recognize that these questionable claims present difficulties. But some of us are fearful that any attempt to amend the mining laws might result in our being amended right out of the forests. The Forest Service people, after all, are foresters and some of us sometimes think they are too concerned with making money on timber in areas that were set up as reserves. But perhaps even more to the point, just how interested are these powerful eastern conservation groups in legitimate mining?"

This westerner professed he was interested in a conference last month called by the heads of 36 major conservation groups with the Forest Service (See page 61). At this meeting, the Forest Service said that legitimate mining has a definite place on the forests. So did a majority of the conservationists present. At the same time, this group bitterly assailed the phoney claims racket—something the mining industry also deplores—and tying up or blocking access to valuable water and government timber. To correct this situation, the conservationists indicated that strong legislation would be required, and soon.

On the basis of this meeting one can only conclude that legitimate mining interests have nothing to fear either from the government agencies or the so-called "powerful" conservation groups.

Tomorrow

Perhaps the outstanding contribution of the recently-published Stanford Report sponsored by the Weyerhaeuser Timber Company, and one on which we all should ponder, is its tacit reminder, implicit on almost every page, that in the final analysis it is the consumer—what he wants in the way of wood products and what he is willing to pay for them—who will largely determine just how much forestry will be practiced in the United States.

Solidly-conceived and well-reasoned, the Stanford Report projects probable wood products demand through 1975. This will be an era of intense economic activity, the report indicates. Over 212 million people will have to be fed, clothed and housed. The story of an industry in transition, the report says that wood will gain new markets during this period, lose others. In general, the future for wood and wood products looks bright but the picture also has its shadows.

One of these is the future of sawlogs. In general, the picture here is the prospect of only moderate increases in production, rising prices, and subsequent loss of some markets. The reason, Stanford tells us, is that costs of stumpage will increase as the supply of available and readily accessible timber diminishes; that logging costs are likely to rise as logging shifts to more remote areas; that manufacturing costs will be increased by the declining size of logs and rising labor costs; and that distribution costs (transportation being the chief factor) will continue to rise.

The present trend, the report indicates—and AFA members saw some of it on their recent trek west—is toward integration, harvesting the whole forest crop and using all the material that comes to the mill. With more of the whole crop being used to produce more and more products there will be relatively less drain on the forests as time goes on. Meanwhile, the future for sawtimber as such looks cloudy, the report shows.

In its Program for American Forestry, the AFA states that a great need in forest practices is increased growth in trees of sawtimber size. This growth, the AFA said, can be more than doubled ultimately, provided sound management programs are promptly and generally applied. But can existing sawlog markets be held while these practices, still sorely needed in far too many areas, are put into practice?

With price a dominant factor, it now becomes apparent that unless both the industry and public forestry can mobilize to stave off the seemingly inevitable, more and more sawlog markets will continue to be lost. True, there is a tradition of wood in the nation and good public relations and salesmanship can help, but it is also significant, we think, that a substantial portion of sawlog markets already lost were lost to the wood industry itself rather than to competitive materials.

Assignment in F

Forestry ranks high in the economic activity of the island, but it has often been bogged down by political intrigues

(Editor's Note — Politically and militarily, Formosa—or Taiwan, as the natives know it—is one of the most strategic spots on earth. Bastion of the free Chinese, the island is in imminent danger of invasion by the Communists from the mainland. If such an invasion should be attempted it could embroil the whole world in a disastrous war, for even now Formosa is an idealogical battleground. What role do the forests play in the economy and potential strength of Formosa? This article, the first of a two-part series by an American forester who knows the island and its people intimately, will help answer that question.)

WHERE North Latitude 25° intersects East Longitude 122° the Northwest Airliner, in which I was a passenger, veered west to follow the Tamsui River. We were over Taiwan (Formosa), China. Military regulations of the country, at that time, required all planes landing or taking off to do so with window curtains closed. Attending to this blackout chore, our hostess was busy as we started the descent. Twenty minutes later I was on the ground at the Shungshan Airport, a short distance from the capital city Taipei. It was 9 a.m., December 22, 1950.

Gathered to meet and to welcome me to Free China were representatives of the J. G. White Engineering Corporation, which company had employed me for forest engineering work in Taiwan. With my papers properly stamped I was led to the airport entrance where I met Liu, a driver-mechanic for White Engineering. For the next two and one-half years Liu would be my chauffeur. Later I was to learn why no other engineer wanted Liu for a driver. During the war he had driven trucks over the Burma Road where, under hazardous and adverse conditions, speed had been essential. Liu still considered speed in the same vein.

Riding from the airport to the center of Taipei, I had my first glimpse of this country where Chu Kwang, a Chinese officer, landed in 607 A.D.: the country first sighted by Portuguese sailors in 1544 and named by them "Illah Formosa" (beautiful island).

Within the hour the staff of engineers and local employees of White Engineering were introduced, an office had been assigned and I was possessor of a packet of Taiwan money. 15.55 New Taiwan dollars equal one U. S. dollar. Lunch at the Friends of China Club and I was driven, with my luggage, to the company Guest House at Peitou some six miles northwest of Taipei. Here I was greeted by the houseboy Joe, an ex-barboy from Shanghai who, I was to discover later, played an excellent game of cribbage.

Nestled in the mountains, Peitou is a beautiful resort town with numerous hotels and private clubs catering to the public. Hot sulphur springs, last remnants of a volcanic region, are the chief attraction here. The hot sulphur water is piped to large baths in all of the houses and hotels. Each room at the Guest House had its connecting bath with a constant flow. After the plane trip a soak in the sulphur water was both refreshing and relaxing.

Generalissimo Chiang Kai-Shek, leader of the Nationalist Chinese on Formosa
Wide World photo

While I was arranging my belongings Joe appeared with a glass of hot tea (an old Chinese custom). With him was Tommy Whang — I'd met him earlier—to invite me to a Chinese dinner. He explained that each year the "Boys of Chinatown" (a self-named group of local male Chinese employees at the office) had a Christmas party for the engineers. In the rush of events I had forgotten that the Christmas season was at hand.

That evening found the staff assembled at a local Taipei restaurant. On round tables sets of chopsticks, spoons, wine cups, saucers and bone plates had been systematically arranged in front of every seat. Each person has a set of these articles exclusively for his own use. With the exception of eight cold dishes, placed on the table prior to the guests' arrival, at a Chinese dinner, all dishes are served one at a time, each dish being placed in the center of the table. As soon as the second dish is brought in the first is taken away.

When all guests had arrived the order to "warm" the wine was given. Wine commonly used in China is Shaohsing or rice wine and is served warm. Following Chinese custom, when all guests were seated the host raised his cup and said "ch'ing," meaning "please." All guests then drank. With a pair of chopsticks in his hand the host again uttered, "ch'ing," and everyone started to eat. This ceremony was repeated each time a new dish was served.

With the serving of the first main dish the host requested the guests to drain their cups by saying, "kan pei," literally "dry the cup," our equivalent of "Bottoms Up." This

Formosa

By NELSON H. FRITZ

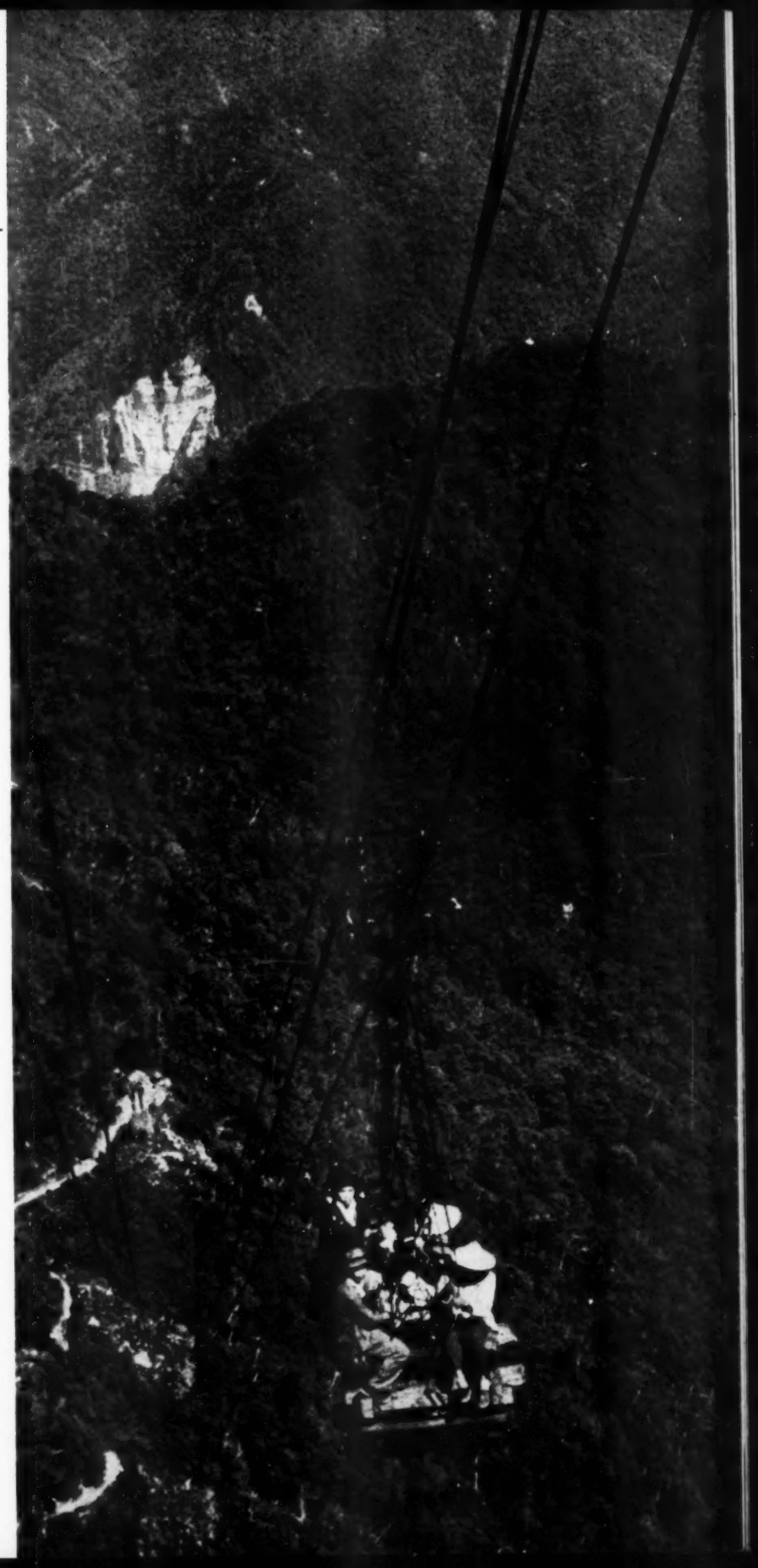
first kan pei signalled the opportunity for the guests to thank the host for his hospitality. On special occasions, and this was one, the host or hosts go from table to table and from guest to guest "kan peing" with each and every one.

Our dinner consisted of eight or ten main dishes including sharks' fins, usually served first, fried prawns. sweet and sour pork, abalone, creamed Chinese cabbage with bamboo shoots, steamed fish, Peking duck and the soup and rice which are always served last. Peking duck which constituted the chief main dish is served in two stages. The crisp, fried skin, cut into convenient bite sized pieces, is eaten first. It is placed on a large platter in the center of the table and surrounded by dishes of heavy, chutney type, brown sauce, piles of fresh spring onions and stacks of round, plate size, very thin, steamed bread. On the steamed bread you place the skin of the duck, garnish it with the sauce, surround it with the spring onions, fold or roll the whole thing into sandwich style and eat it with chopsticks or fingers. It's delectable. The meat of the duck appears later as another course.

As a guest of honor I was given a seat at the round table facing the door and opposite one of the hosts. There is always a lot of fun and joking at a Chinese dinner and I had been selected as victim. Everyone watched to see how the newcomer would react to chopsticks. Surprise and amazement registered on their faces as I nonchalantly picked up my pair and handled them like an old China-hand. My two years in Korea had not been in vain.

Legend relates that the Chinese man wants five things: 1) a Japanese wife: 2) an English cottage; 3) a French mistress; 4) an American passport; 5) Chinese food.

Chinese food should come first on



Getting to a Formosa logging camp may require a breath-taking cable car ride

the list for they love to eat and have many tempting and tasty dishes.

Christmas day 1950 was like one in mid-summer, clear and hot. Joe the houseboy had a tree, replete with decorations, in each room at the Guest House. Scissors, string and colored paper had played no small part in creating flowers, bird cages with birds inside, airplanes, chains and other ornaments. At the base of my tree stood a twelve inch Santa Claus smoking a cigarette.

Daughter of a Chinese farmer planting mulberry trees on the island of Formosa
Chinese Embassy photo

All work and no play — but the play was over with Christmas and there was work to be done. Designing and drawing specifications for a timber treating plant was but one of the projects on my list. Others were increasing production of logs, lumber and forest products. Strengthening the Forest Administration, increasing products' value to U. S. by $8,000,000, building up the pulpwood supply, and other general forestry problems.

For a clearer understanding of the forest situation in Taiwan consultations were arranged with the then Governor K. C. Wu and with the Director of the Taiwan Forest Administration, Dr. S. C. Lee, who had received his Ph.D. from the Yale School of Forestry. They explained that the total land area of Taiwan is 3,596,100 hectares of which 67 percent or approximately 2,400,000 hectares are forest lands. Of the overall forest land 2,200,000 hectares are forested and 200,000 hectares are denuded. (A hectare is equal to 2.471 acres.)

Coniferous forests occupy about 16 percent in area and 34 percent in timber volume while hardwood and bamboo forests occupy 84 percent in area and 66 percent in timber volume content. Total volume of standing timber is 206,000,000 cubic meters, 70,000,000 cubic meters of conifers and 136,000,000 cubic meters of hardwoods. (A cubic meter is equal to 35.313 cubic feet.)

True forest volume for Taiwan is not known. Unreliable records left by the Japanese have been checked against two surveys made by the Forest Administration and the Taiwan Forest Research Institute. Close results indicate a total forest volume of from 203,000,000 to 206,000,000 cubic meters of standing timber.

A volume guide set up by Dr. Lee and used in a working plan was as follows: total forest volume, 200,000,000 cubic meters; protection forests (watersheds), 40,000,000 cubic meters; remaining forests, 160,000,000 cubic meters; noncommercial or inaccessible, 40,000,000 cubic meters; commercial forests, 120,000,000 cubic meters; permitted annual cut, 1,200,000 cubic meters; recommended annual cut, 800,000 cubic meters; excess or permitted for emergency cutting, 400,000 cubic meters.

Since the permitted annual cut of 1,200,000 cubic meters was based on an annual increment of one percent, restricting the cut to 800,000 cubic meters allowed 400,000 cubic meters to be added to the total forest volume each year. On the other hand there was always this 400,000 cubic meters available for emergencies and if taken the total forest volume still remained constant.

The above figures have been challenged for their accuracy. Statements have been made that the annual increment is only six-tenths of one percent. Examination of hundreds of logs indicates that a one percent annual increment is too low. At the beginning of 1951 these figures were the only ones available with which to work.

Governor K. C. Wu on June 8, 1951, appointed me Forestry Advisor for the Taiwan Provincial Government. Admonishing me that he expected results, he also promised that he would back up all practical proposals.

After drafting a Forest Policy for Taiwan, Dr. Lee and I worked out a reforestation program for the island. Provided no additional facilities were installed it would take 20 years to complete reforestation. Importation of seedlings together with the establishment of additional nurseries could reduce this time to 10 or 15

Though Formosa has a great deal of uncut virgin timber, oddities like this stump which appears to be nurturing new growth are common

years. For 40 years the Japanese had annually reforested areas equal in size to areas cut. With the repatriation of the Japanese in 1945 the Chinese continued this reforestation program, striving to plant annually areas larger than those cut. Denuded lands, however, had been neglected.

Establishment of banana plantations and citronella grass farms had further complicated reforestation plans. Erosion in these areas had become a problem of no small proportion. Apparently these plantations had infringed on former forest lands in many instances and unless curbed would continue to do so. Recommendations were made for the establishment of a Land Use Board to designate, once and for all, lands suitable for agriculture and lands which should be set aside for forests.

Forest management plans were being formulated when there arrived in Taiwan a forester employed by MSA (Mutual Security Agency), to head up the Forestry Division of JCRR (Joint Commission On Rural Reconstruction). He had not been informed of my presence nor had I been told of his coming. Since my principal objective was increased production we verbally agreed to separate the work. While he took care of management, reforestation and silvicultural practices I would handle logging, lumbering and forest products.

All forest land in Taiwan is owned by the government and is managed by the Forest Administration which operates six logging stations and a number of sawmills. Private operators are afforded timber cutting privileges and some 200 sawmills, scattered throughout the island, saw into lumber the logs produced by the private operators. In general all logging operations are conducted in high, rugged, mountain areas at elevations of from 2000 to 12,000 feet.

Never-to-be-forgotten is a visit to the government owned logging stations. Located in steep, rough terrain where roads are non-existent, stations are reached by a series of cableways. Small passenger cars transport the workers up the mountains at all but two of the stations. Where there are no cars you ride up on a pallet and down on a log. From two to five cableways supply the stations. When at midway of a cableride, suspended some 2500 feet in the air, you put a lot of confidence in a wire rope.

Logging railroads follow the contour of the mountains at the various working levels. Yarders are spaced at intervals along the track. As the trees are felled and bucked into logs they are yarded up or down the slope to the track level. Here they are loaded on cars for transportation to the cableways and taken down. Where the five cableways are used logs are handled 21 times before reaching the sawmill. This extra handling adds to the logging cost.

Since many logs are of great weight, for easier handling they are sliced lengthwise. Such practice is both costly and wasteful. First and second lumber cuts are lost from two faces of every sliced log. With high-grade lumber at $200 per thousand board feet the loss can run into real money. No standard sizes have been established and logs are cut as short as four feet or as long as 20 feet. There is no standard size lumber either and custom sawing, the general practice throughout the island, is also costly and wasteful.

In the high mountain areas one encounters the aborigines. Migrating to Taiwan in prehistoric days, they are presumed to be of Malayan origin. Comprising a population of 139,000, they are split into seven tribes. Although their dialect is simple, they are not alike and each tribe's is different from the others. Former prevalent practices of the aborigines, such as headhunting and tattooing, are passing and have been outlawed by the administration. Approximately 85 percent of these people have been converted to Christianity and missionaries have taught them numerous arts and crafts. Native aborigine dances are colorful and picturesque. The girls enjoy nothing better than to perform a set of dances for foreign visitors. The dance ceremony has certain drawbacks, however. Before the dance begins the visitor is invited to drink with the chief of the tribe. The liquor, a concoction of herbs, roots and bark, with high alcoholic content, is

Despite technical assistance from American foresters and experts from other countries, life on Formosa retains its Oriental flavor

poured into a half coconut shell. Now the visitor and the chief drink from the shell at the same time. The tribe is insulted if one drop is spilled. Such drinking without spilling is quite an achievement. Many aborigine men are employed at the logging stations and do an excellent job. Mother nature has moulded them straight, honest and true woodsmen.

The orchid, queen of the flower world, thrives in the mountain areas. Some 400 to 500 varieties exist in this exotic land. About 40,000 plants are in the hands of the more noted collectors. The annual Taiwan orchid show is attended by thousands. "Oh's" and "ah's" are audible from all sections of the exhibit as viewers examine large individual blooms or the small blooms of which there have been as many as 120 to a single plant.

Yes, aborigines and orchids live and grow in Taiwan's mountains along with the trees—trees that in the past grew to enormous size and served the needs of man. A few remaining specimens attest their former size and magnificence. On Ali Shan, one of the island's scenic mountains, stands the God Tree, a 3000 year old Chamaecyparis 32 feet in diameter at its base. Other trees of the same species, with diameters of 20 feet, form a grove nearby and shelter an ancient Buddhist temple.

Two species of Chamaecyparis—taiwanensis and formosensis — are harvested in Taiwan together with other such commercially important species as Cunninghamia (broad leaf fir), Cryptomeria, Libocedrus, hemlock, pine, oak, Zelkova, Michelia, Castanopsis, and many others. Growing in a vertical distribution from tropical forests at sea level to frigid forests at 14,000 feet, lines of demarcation, separating the forest zones, are easily discerned as one ascends the mountains. In fact, an almost startling abruptness is apparent where one tree species ends and another begins.

Pulpwood is a problem in Taiwan. Two species of hemlock thrive and attain great height and girth between 6000 and 9000 feet elevation. At Lin Tien Shan, a mountain on the east coast, the Japanese had established an operation to supply pulpwood for the Lotung paper mills. The Chinese continue to operate this station and each year harvest some 40,000 to 50,000 cubic meters of hemlock. After yarding, the logs start their journey to the mills. Journey it is, utilizing logging railroads, cableways, main line railroad and ship for a distance of some 85 miles. With stumpage, logging, transportation and miscellaneous charges a cord of pulpwood costs U. S. $96. Cost is but one discouraging factor in pulpwood production. Size is another. The hemlock trees utilized average four to five feet in diameter —far more suitable for construction lumber than for pulp. Yet, until such time when plantations of fast growing pine, eucalyptus or other suitable pulpwood species have been planted and reach maturity, the pulpwood problem will continue.

Bamboo and bagasse are supplying several of the small paper mills. Experimental plantations of two eucalyptus species show promise for the future. For the present, however, the pulpwood and supply for the large paper mills at Lotung must depend on those ancient trees from Lin Tien Shan.

Camphor, for years the country's chief export, is today experiencing a competitive market from synthetics. In remote mountain areas handmade chips, in homemade stills, are converted into crude camphor, Ho-chang and Po-chang oil — the raw materials from which pure camphor and its byproducts are derived. To concentration points, from which they are shipped to a factory in Taipei, these raw materials are carried great distances on the backs of native workers. Antiquated processing, at the factory, converts the raw materials into refined camphor and essential oils.

Although true camphorwood trees (*Cinnamomum camphora*) are native to Taiwan, the Japanese wanted assurance of a continued supply. In 1902 they established the first camphor tree plantation and annually added plantations throughout the island. This practice has been continued by the Chinese.

Celluloid, long dependent on camphor for its manufacture, is fast being replaced by today's plastics. As

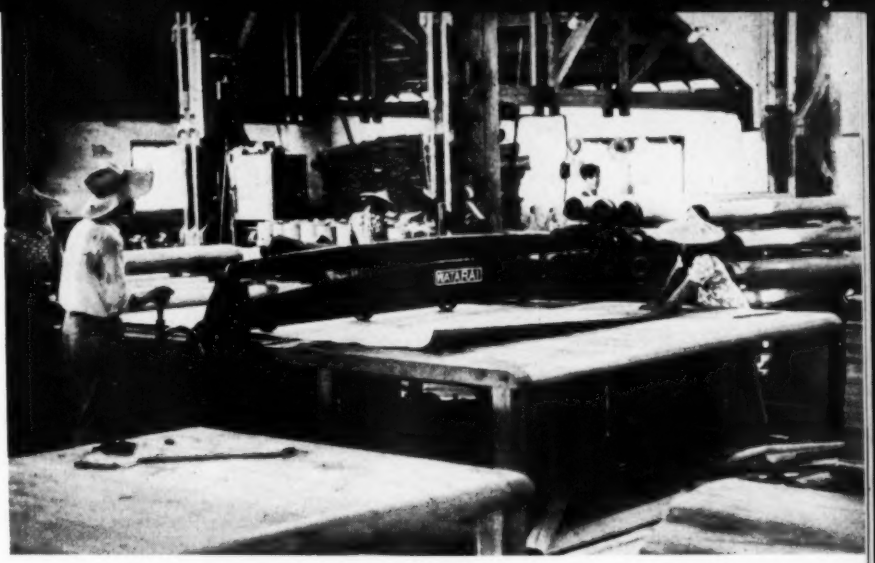
A pagoda at Tiger Park near Sin Chu

Long-used wooden bridges like this one span many ravines in Formosa

a consequence one of the large markets for camphor is disappearing. On the other hand the chemical world is finding new and varied uses for the essential oils produced in camphor distillation and there are those who still prefer the natural camphor to the synthetic. Since some 34 products are derived from camphorwood, the industry will continue in Taiwan, but measures for reducing manufacturing costs must be taken. Suggestions for such reduction have been made. Chippers or slicers combined with small modern stills in the mountain areas would increase production of the raw materials by an estimated 40 percent. Modern distillation equipment at the Taipei factory would eliminate present losses, reduce manufacturing time and cost. With recommended changes and installations accomplished the industry should prosper and the *Cinnamomum camphora* trees will continue to add to the island's economy.

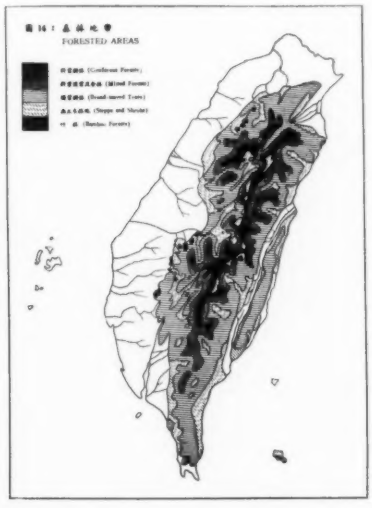
Tobacco and all alcoholic beverages are controlled by the Taiwan Monopoly Bureau. Modern distilleries and breweries produce wine, whisky, liqueurs and beer. Early in 1951 experiments were being conducted in the manufacture of gin, rum and several cordials. I was appointed one of a committee of six to sample the new products and pass on their merits. Surprised that I should be chosen as a "sampling" committee member, I had one of my friends make inquiry as to my selection. "Why," said the manager of the Bureau, "he is a forester and after all our products are aged in the wood."

Cooperage, all hand made, is confined to barrels and casks used by the Monopoly Bureau. Local oak and *Castanopsis* logs are split, sawed, air seasoned, and cut into staves and heads. Skilled coopers, with crude tools, fashion the double arch construction of the staves and fit them in place. A completed barrel is filled with water and allowed to stand until seepage stops. In the absence of coopering machinery, surprisingly good quality barrels and casks are furnished the Bureau for their "aged in the wood" products.



One of various operations in manufacture of plywood by FuShing Co.

Overstaffed with some 10,000 employees, top heavy and with too many conflicting and overlapping departments, the Forest Administration was a masterpiece of inefficiency. One of my first recommendations was for a complete reorganization of this body. Remember however, that in any country operating under an austerity program, "the rice bowl must go around." The number of employees, therefore cannot be questioned. Although their pay is poor and they contribute, in no small amount, to the overhead, they are earning a living, eating regularly and are independent of welfare. Innumerable changes could, however, have been made that would have had beneficial results for the organization as a whole. Since the Forest Administration was a division of the Provincial Department of Agriculture and Forestry, and since there was disagreement between personalities of the two agencies over policies, politics entered the picture. Money was the root of this evil. Agriculture wanted control of logging and lumbering—the revenue producer. Forestry wanted no part of such an arrangement. On the premise that logging is an integral and important phase of any overall forest policy and that logging methods employed determine the future of the forest, I recommended that the Forest Administration, responsible for forest policy, should have control of logging and lumbering as long as it continued to be a government industry.



Recommended by the opposition, favoring Agriculture, was the raising of the Forest Administration to Bureau status with control over all forestry principles, policy and practices *except* logging and lumbering which would be controlled by Agriculture. After several meetings with the governor resulting in no definite decision I suggested that logging and lumbering be set up as an independent business with supervision by the Forest Administration. The opposi-

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THE ORIGINAL Hump on a Log

By NORMAN L. MILLER

Some of our most highly-prized wood products are made from burls, the protuberances frequently found on trees

WOOD burls, large protuberances frequently found on trees, are the original "humps on a log" and from them are made the finest and most highly prized veneers and turned wood products.

Such growth provides veneers for such massive articles as chests, table tops and other pieces of furniture, since the huge-sized burls frequently weigh thousands of pounds.

The story of veneers used in fine furniture by the Egyptians is of more than passing interest to furniture makers, who would be hard-pressed to do the same work without the complicated and highly developed appliances in use today.

Unanswered are the questions as to how these early craftsmen were able to saw thin layers of rare and precious woods from burls and logs and how a glue was prepared and made to hold, despite the passing of 3500 years. That the households of Rameses, Thothmes, Tutankhamen and other Egyptians recognized the striking figures and patterns produced from the irregularity of grain found in burls is attested to by the fine pieces of veneered furniture found in some of their tombs and which, today, form prize exhibits in various museums of the world.

The Ninth Egyptian Room of New York's Metropolitan Museum of Art contains a classic example of veneering in a coffin dating to the Twelfth Dynasty. It originally contained the remains of Nepthys, an Egyptian monarch's daughter. A bed, found in the tomb of Iouya and Touya, great-grandparents of King Tutankhamen's wife, is in the Cairo Museum. The latter is of veneered panelling, laburnum and acacia woods covering the surface of inferior headboard wood.

The manner in which burls form is a subject for debate. Some authorities contend their formation is the result of injury to the cambium by fungi and bacteria. Investigations have shown that during the 17th and 18th centuries, in Algeria, it was the practice to burn part of African thuja (*Callitris quadrivalvis Vent.*) stems and sprouts. In time, this injury produced abnormal bulges or excrescences on the opposite side of the trunk.

An Italian, Piccoli, reported burl-like growth forming on boxwood (*Buxus sempervirens L.*) stems after placing tight-fitting metal bands around them. Residents of New York City can also attest to this happening to many of their curb-side and parkway trees, especially those supported from early growth by metallic uprights, topped by circular metal bands. The trunk

areas, restricted in growth by the metal bands, produced adventitious buds which eventually led to the formation of a swelling.

While Algerians of an earlier day deliberately burned trees to produce burls, research among the manzanita (*Arctostaphylos spp.*) shrub stands in California, by the California Forest and Range Experiment Station, reveals that brush fires detract from the merchantability of manzanita burls. While new crowns and stems develop after such fires, these develop burls of their own which, because of odd shapes, are difficult to reduce to smoking pipe blocks, for which purpose they are extracted. Fires have a tendency to produce checks and cracks in the burls, opening the way for fungi and insect invasion.

As a result, foresters claim it takes an additional 25 to 30 years' time for the burls to develop enough sound wood to make them merchantable.

For all practical purposes of beautifying a park or garden, therefore, bulges at the base, trunk or crotch of trees detract from their appearance, but from the veneer maker's point of view burls of such native species as Oregon myrtle, maple, walnut and redwood are the more valuable when fiber alignment is irregular and gnarled.

It is a remarkable quirk of nature which produces a straight-grained wood in one tree while another of the same species may have a twisted and curly grain.

Patterns and grains vary from top to bottom of trees. Most veneers come from the longwood, or trunk, of trees. Stumpwood, in turn, produces twisted and irregular veneers. Crotch wood, crushed and twisted below the section of the tree where it forks, is much sought after for its "feather," "flame" or "moon" design, depending on the pattern it favors. These figures come from the center of the crotch, while the front and back sections of the same block often produce a veneer known as "swirls."

Veneer manufacturers select logs and burls with care and consider factors the general lumber industry can afford to overlook. If wood grain in a tree trunk, for example, is wavy, veneer makers know the "curly," "fiddleback" or "roll" patterns may appear. Interwoven grain indicates "stripe," "broken stripe," "rope" or "mottle" figures, while other variations in grain can be counted upon to bring out "bird's eye," as in maple; "blister," "quilted figure," and various other freak designs.

While nature takes care of irregularity in grain, finest figures in veneer are obtained by close consideration of cutting methods in their relation to annual rings, pigment coloring and pith rays.

During World War II American smoking pipe manufacturers were cut off from their supply of tree heath (*Erica arborea*), better known as brierwood. A dwarf tree fairly common in Mediterranean countries, tree heath pipe blocks originally came from France as early as 1860, then Italy. Depletion of tree stands in those countries brought Algeria into the export picture and a known 13,200 tons of blocks were shipped to America between the years 1910 to 1937.

Regenerated stands of tree heath brought France and Italy back into the export of tree heath blocks but limited supplies, plus the war, made it necessary for American manufacturers to seek other wood substitutes.

Using an estimated 40 million burl blocks annually, each one cut to a size suitable for the manufacture of a single pipe bowl, the industry turned to domestic woods.

Seven pipe-block mills were established in the southern Appalachians during the summer of 1941 and in time were producing one-quarter of the blocks needed by the industry. Mountainlaurel (*Kalmia latifolia*) and rhododendron (*Rhododendron maximum*) burls were extracted and sold for from $10 to $12 per ton. In midsummer of the same year three large pipe block mills, centering around Watsonville, Calif., were set up to handle extractions of

manzanita burl grown in Santa Cruz and Monterey counties.

These domestic burls proved quite satisfactory in that they resisted charring, were free of unpleasant charring odor, resisted checking when heated and, combined with a flame grain, had many of the desirable qualities for which brierwood is noted.

Oddly enough, manzanita and tree heath are botanically related, each belonging to the heath family (*Ericaceae*). Hardy, drought-resistant and capable of growing on poor soils, both have the faculty of growing burls even in the young plants, with the manzanita shrub growing more rapidly of the two.

With American production line methods used by pipe makers, burls are first cut into slabs, then strips. The latter are cut into blocks and the last mill operation roughs out the block in the shape of the pipe model for which the grain is best suited.

In the manufacture of furniture veneer, four methods are used for cutting logs and burls. Rotary cutting, the most widely used method, involves rotating a log or burl against a knife so that a continuous sheet of veneer is unrolled in spirals. Veneer cut in this manner makes up the central plies and other "concealed' parts of furniture.

Mahogany and other figured woods are sliced, or sheared, from the flat section of a split half of a log, burl or crotch section. The two remaining methods are sawing with segment saws and half-round cutting. Since saw kerf waste equals the thickness of veneer in the former method it is not entirely satisfactory for wood other than oak. The latter process is done on a lathe using a "stay log," which permits rotary cutting on a larger diameter.

The harvesting of burls is expensive and time-consuming. Since the burl is usually at the base of the tree it has to be grubbed out of the ground and the tree sawed or chopped away.

Oftentimes trees having burl growths are found in out-of-the-way places, hard to reach by transportation. A madrone burl taken out of the woods near Myrtle Point, Ore. weighed 5000 pounds, and getting it to a point where it could be reached by team or truck posed a weighty problem. It was finally sawed in two sections.

In the Appalachian industry the prime job is to hunt for sites where clumps and thickets of mountain-laurel and rhododendron grow, since they seldom comprise areas larger than a couple of hundred acres.

Burls did not appear as items of export from Columbia River points until 1928, when 13 tons were shipped to Europe. Since then the export figure has soared. Less than ten years later, in 1947, shipments of burls by water from Portland, Ore. to France and Italy, totaled 1,388,280 pounds. California, Washington and Oregon moved an estimated 25 percent of the nation's burl exports.

Strangely enough, much of the fine furniture veneer made from exported burls is returned to the United States for commercial use, especially western maple. Domestic veneer manufacturers prefer not to use this wood more than they have to because of its tendency to contain streaks of ingrown bark. Resorting to craftsmanship rather than mass production methods, European veneer makers are able to make the most of this plentiful wood.

Through the years, veneer patterns and colors change, just as fashions in clothing, architecture and coiffures reflect the spirit of the times.

In recent years, redwood has come to the fore not only for fencing but for the panelling of dens, as well. This presents a fluctuation in interior woodwork and furniture, with Mr. and Mrs. John Q. Public preferring dark woodwork and heavily stained furniture, to light or white woodwork and so-called "blond" furniture. Public tastes in wood patterns and figures vary also with taste in color. With better marketing and advertising methods veneer manufacturers keep up with these trends and are able to supply homebuilders and owners with a greater variety of veneer stock than has ever before been offered.

No story about tree burls would be complete unless it made mention of one of the most remarkable growths to be discovered by man. With forests being cut over and

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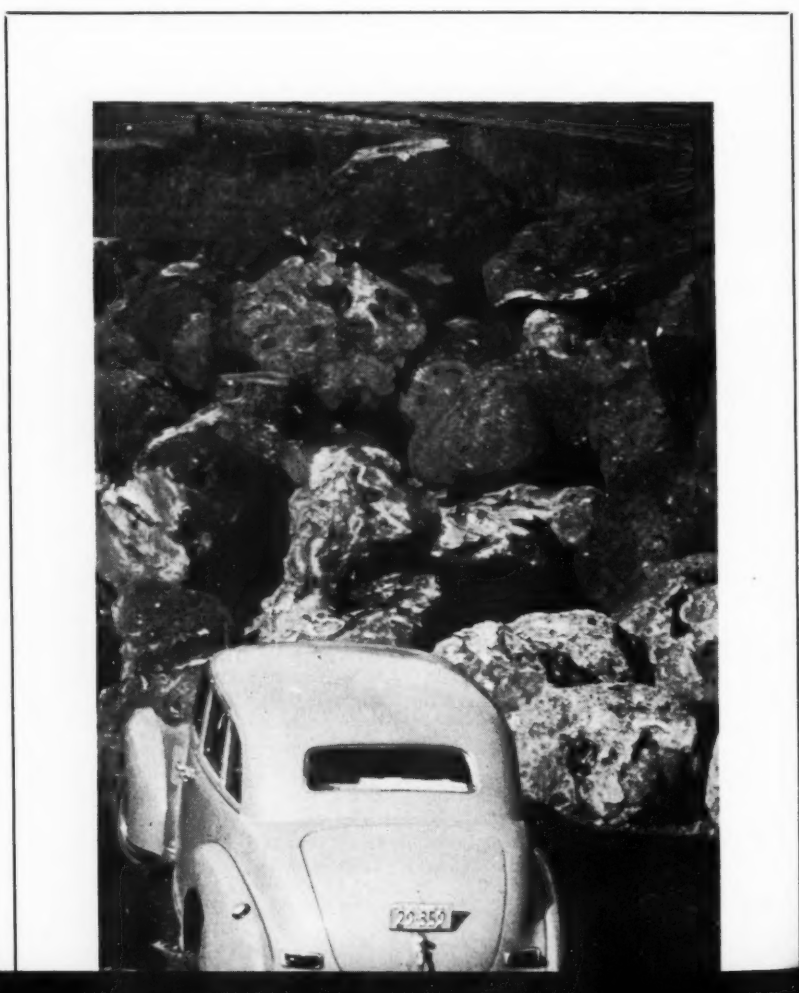
King-sized burls rest in burl yard at Portland, Oregon



The author says billions of our hard-earned, inflationary dollars have been washed away in ill-advised schemes to make water behave itself. He contends its time we started to . . .

Watch those Raindrops

By WELDON F. HEALD

EVERY man, woman and reasonably bright child in the United States realizes that we face a serious water problem. We are all agreed that water is a basic natural resource and that the time has come for its conservation and wise management if we are to survive as a nation.

But from there on out we don't agree on anything.

A strident cacaphony of quacks, honest men, selfish interests, scientists, engineers and bureaucrats shout their water nostrums and cure-alls across the land—and we have bought all of them. Billions of our hard-earned, inflationary dollars are being spent in a feverish, last-minute attempt to dam, check, spread, harness and bulldoze water into behaving itself. This is a typical example of the good old American theory that if you spend enough money you can lick anything. But Nature hasn't yet become indoctrinated with the American Way of Life and she isn't cooperating. The water situation steadily gets worse.

What is the trouble anyway? Why aren't our multi-million-dollar dams and valley projects solving the water problem?

At this point I should frankly state that I am not another expert offering a new sure-fire panacea. I am simply a first hand observer who, after thirty years in the outdoor West — its mountains, valleys, forests and deserts—have formed certain conclusions about water. Although by no means original with me, they seem to be based on fundamental facts, and make sense.

My own observations, reinforced by those of men whom I believe know something about the subject, have convinced me that our present hydraulic, mathematical, engineering approach to the water problem is not nearly so effective as it should be. It has missed fire, I believe, because it disregards the methods Nature has used in handling water upon this earth for some two billion years. We have presumptuously declared war on the boss of the universe, when we should become her allies—if we know what's good for us. We haven't even had the good sense to plan an over-all campaign nor put coordinated troops in the field.

I think the trouble is that we have never grasped the fundamental fact that the earth's water cycle is a continuous operation, from ocean to cloud to land to stream back to ocean. So we tackle the water problem on a piecemeal basis, as if the parts were more important than the whole. A dam here, a culvert there, a ditch over yonder, and God help us! But it is pretty certain that until we broaden our thinking and integrate our plans to include the entire cycle we will never achieve a wise and comprehensive water management policy.

This water cycle is like a human life from birth to death. And, as with human beings, the time for the education, training and discipline of drops of water is in early life. To dam a river and neglect its watershed is much as if we let the kids run wild and unattended, then on their fortieth birthday put them in straightjackets and try to train the deviltry out of them. I don't think it would work with humans. I know it doesn't work with water.

Actually the most important moment for us in the life of a drop of water is when it strikes the ground as rain or snow. Planning should begin when a raindrop falls. In that split second its destiny is set and its future course determined. Whether it becomes a well-behaved drop of water or a destructive little stinker; healthy and long-lived or a weakling that soon gives up to evaporation, all depends on the conditions of its birth and early environment.

So, watch those raindrops!

This seems like a pretty large order. Precipitation in some form falls on every square inch of the earth's surface and we can't take care of it all. But this isn't quite such a gigantic task as it first appears. We don't need to take care of it all. Nature was doing a good job of water conservation and management long before we humans started to monkey with the system and throw it out of kilter. So obviously the smart thing to do is to hand back a large part of the job to her. And the nice part of it is that, unlike the Bureau of Reclamation and the Army Engineers, she'll do it free of charge—or at least at cut rates.

So let's go to the upper watersheds of our streams and rivers and take a look at how Nature did the trick, and what we can do to repair the destruction man has wrought in his cocky, self-confident conquest of the continent. It is in these upper watersheds that the basic conservation of water must begin, for that is where a large part of it comes from, particularly in the arid and semi-arid lands of the Far West.

The first thing we note is that, as a rule, these upper watersheds are far steeper than the lands below. Therefore, it is more difficult to prevent erosion and rapid run-off, which both result in a loss of water where it is needed most. But strangely enough, it is right there in those important and crucial birthplaces of our rivers and streams that we have been most negligent and careless. Erosion, rapid run-off, silt and evaporation are the grim Four Horsemen of water conservation and man's activities, for the most part, have aided and abetted them in running roughshod over our watersheds. In fact, some geologists say that the human race has introduced a new greatly accelerated erosional cycle that is some ten times faster than

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Mrs. T. M. Francis—Eulette to her many friends—has debunked the idea that conservation is for men only

Meet Madam Conservation

By NELLE CLEGG WATSON

ARE you one of those who think conservation is man's work? Do you think that women who dabble in conservation are doing just that—dabbling? If so, you've got a shock coming. Meet Mrs. T. M. Francis, a 1954 Nash Award winner, and read about her conservation work.

Mrs. Francis, better known in conservation circles as Eulette, is a nonprofessional conservationist, a writer and speaker of national renown, and is one of two women who have received the Nash Award. Out of 729 nominees her record as a conservationist won this award for her. The beautiful bronze plaque was presented to Mrs. Francis early this year by George W. Mason, president and chairman of the board of the Nash-Kelvinator Corporation.

Eulette is a fire and brimstone crusader who has enlisted the help of all individuals from clubwomen to judges in her determination to preserve our natural resources. In so doing, she has literally stopped thousands of forest fires throughout the nation.

Balancing her 115 pounds on tiptoe and pointing her finger in the Francis manner, she raves, rants and harangues a group 'til each person is in a fever of enthusiasm. In her own words, she "crams conservation down their throats."

From 1941 to 1944 she served as chairman of the conservation of natural resources group of the General Federation of Women's Clubs. As such she had following her, the largest organized group in the United States other than the federal government. While serving in this capacity she became incensed at the laxity of state and national law enforcement as regards convicted woods burners. She worked with state forestry officials to get these incendiarists before the judges, only to see case after case dismissed by judges who did not perceive the seriousness of these offenses.

An excuse given by one hunter who had started a forest fire was that he set fire to the brush to make rabbits run out. The judge laughed and said he had done the same thing many times. He let the man off with the minimum fine. This and other distortions of justice aroused Mrs. Francis to letter writing on a major scale. At her own expense she wrote a personal letter of protest to every judge in the nation, stating in no uncertain terms, that she felt the burning of our timber in war times was sabotage and that each judge who passed a small fine on such law breakers was guilty of aiding and abetting the enemy. Her "sabotage" letter no doubt caused many judges to revise their way of thinking about fire trespass laws.

Mrs. Francis began her conservation work at the state club level but her enthusiasm and resulting works soon brought her national recognition. While serving with the General Federation of Women's Clubs she sent out a monthly bulletin for three years. These went to the 48 states and to 24 foreign countries who were affiliated with the federation. In these bulletins she stressed conservation measures and sent suggested speeches for club programs and radio talks. Imagine the results when the judges of the 48 states began receiving followup letters to the "sabotage" letter from women all over the nation as well as from sportsmen's organizations and wildlife federations.

AMERICAN FORESTS discussed her program in the December 1943 issue and gave "our whole hearted endorsement."

Renown throughout the nation in conservation circles has not changed Eulette Francis one bit from the fighting crusader who began on the local garden club level. Her homey phrases such as "muddy waters are a sin," "conservation for more abundant living" and "judicious use of resources" have become by-words which brought her the title of "Heavens Gift to Garden Clubs of Alabama" and, in Washington, D. C., "The Garden Lady."

She uses the strategy of a seasoned politician in getting across her conservation plans. At one time, when the state legislature was in session, she used this innate strategy to knock down opposition to a conservation measure being voted on. Just before the voting, each legislator was approached by a uniformed boy scout who presented a mimeographed sheet, setting forth, in a scout's terminology why the measure should pass. The controversial measure passed and some of the credit for its passage must certainly go to the strategy Mrs. Francis used in placing the copy so dramatically before the legislators.

Entire cities and counties are sometimes swayed by Eulette's actions in behalf of better conservation. She once aroused the citizenry of an Alabama city to such a pitch that the county commissioners completely reversed plans to cut the county forestry appropriation. When

Mrs. Francis heard of the commission's plans, she went into action.

First, she obtained 15 minutes of radio time on the local station. With a technical forester standing by, backing her claims, she talked in her inimitable flag waving way to the unseen audience. She told them what the commissioners were planning to do. She told them what such a step would mean to them in terms of burned acreage, lost timber and ruined soil. She set telephones ringing throughout the county.

Next, she called together the garden club women of the area. In an hour long session, she outlined the danger of the enemy and laid plans for an all-out fight. The women dispersed and began maneuvers.

When the phone-harried commissioners met at the courthouse that morning, they faced a solid wall of women on the steps, each with a lunch sack in her hand. They soon learned that this was an opposition block, determined to stay as long as necessary to thwart the intended cut. Before the day was over, an increase in county appropriations was approved and Eulette Francis and her followers went away with the knowledge that another victory had been won over fire and erosion.

Mrs. Francis's theory that we get from our politicians what we demand is usually proved right when a group of women, such as a state garden club, numbering in the thousands, gets to work on an issue. Many congressmen and senators have received a flood of mail from women constituents regarding conservation measures as a result of her teaching.

Is it any wonder that Eulette Francis is listed in the Third Edition of American Women, which is the Standard Biographical Directory of Notable Women?

The dream that has kept her enthusiasm at such a high pitch is that public opinion may be molded, by education, to use our natural resources judiciously. That her dream is coming true in her own county, is shown by the report that over 20,000 seedlings were planted in school forests in recent years, planted by children and sponsored by garden clubs.

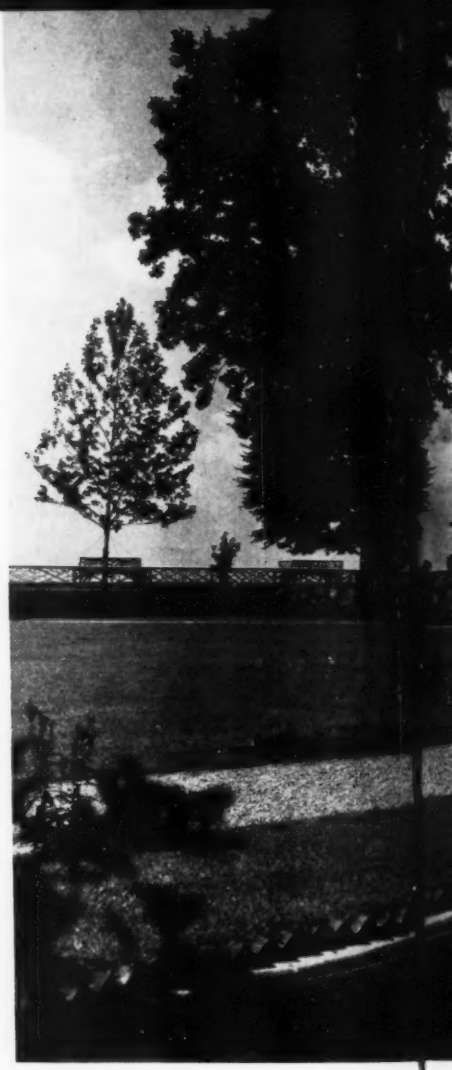
As you realize more and more the awareness of the general public to conservation needs, remember that this wiser, more informed public is a part of the dream that has kept Eulette Francis working for you—and for me, since 1912.

Mrs. Francis receives Nash Conservation Award from George W. Mason, chairman of the board of Nash-Kelvinator Corporation

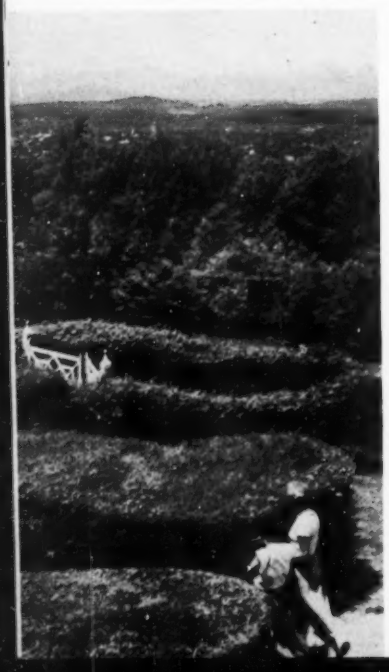
The spirit of a great American statesman and conservationist lives on in the trees planted by him on the beautiful grounds at Monticello

Living Links With Jefferson

By E. JOHN LONG



Beautiful hedge is Monticello landmark (not original) shown in bloom



IN seven splendid old trees, that still spread their cooling shade over the lawns surrounding the mansion at Monticello, the spirit of Thomas Jefferson may truly be said to live on. Magnificent specimens they are, soaring high above the white-domed rooftop and the "Little Mountain" that itself commands such lordly views of the Virginia piedmont and distant Blue Ridge summits.

In a very special sense they are living links with the sage of Charlottesville. Not only because he planted them, but also because had Jefferson not been famous as a statesman, philosopher and writer he would have been remembered as one of America's great pioneer biologists and horticulturalists.

During the half a century that Monticello was his home Jefferson

The mansion grounds at Monticello reflect Jefferson's appreciation of the beauty of trees

used its fertile acres as a kind of proving ground for trees, plants, shrubs and flowers of many varieties, and he kept a "Garden Book" record of his experiments and activities that is still a valuable sourcebook of early American agricultural and arboreal information.

Even when Jefferson was serving his country abroad as ambassador or special envoy he constantly sent back to his Virginia plantation and elsewhere shoots, plants and seeds of all kinds of growing things that he felt America could use and needed. He was thus a one-man forerunner of today's Division of Plant Exploration and Introduction of the U. S. Department of Agriculture. Not all of his experiments succeeded, but that often was not the fault of Jefferson. Packing and shipping facilities were unreliable, and in many cases his explicit instructions were not followed, either in shipment or in transplanting.

Like George Washington, Jefferson was keenly aware of both the aesthetic and the practical value of trees, and, in fact, everything that grew within his several plantations. "There is not a sprig of grass that shoots uninteresting to me," he wrote his daughter, Martha Randolph, in 1790. Jefferson shared with Washington, too, an enthusiasm for forestry, timber conservation and the better propagation of trees in an era when wood was something of a drug on the market, and people were more concerned with the wholesale clearing of timbered land than in adding to the lumber supply.

As trees go, the seven veterans that have survived from Jefferson's time at Monticello are not very old. For that matter neither is any other living thing on this miniature peak that Jefferson selected early in life as the place where "all my wishes end" and where he hoped his days would end. The entire site, a part of much bigger land holdings of the Jefferson family, had first to be laboriously cleared and levelled in order to provide space enough for the mansion and the broad lawns that today so beautifully set off the estate's flowers, shrubs, walks, and, in particular, the scores of trees of many varieties.

If ever a landscaping plan started from scratch, therefore, it was that of Monticello. Jefferson began the immense task of trimming the mountain top down in 1768, and he moved into the unfinished mansion in 1770. Meanwhile all the native

trees, shrubs, and flowers had to be uprooted, and replaced. So we are fairly certain that none of the trees on the mansion grounds today is more than 180 years old. "What would I not give that the trees planted round the house at Monticello were full-grown," Jefferson lamented in 1793.

For long intervals, too, Jefferson was away from Monticello as legislator, governor, ambassador and President. But while he was abroad he visited many of the famous gardens and estates of France and England, and made voluminous notes of the species of plants and trees, the arrangements of them, and the general balance between trees, shrubs and flowers. Jefferson finally concluded that the "naturalistic" planning of English gardens was more suited to his American plantation than the more formal garden arrangements of Paris and of the great chateaux.

It was not until 1807, therefore, that Jefferson was able to draw up a definitive garden plan that included the placing of trees, shrubs and flower beds in relation to a general landscaping scheme for the mansion house area. Monticello's planting plan, while it achieves balance, is not too methodical. The real charm of the garden lies in the variety and pleasant grouping of certain trees, and in a well-known pattern that permits the enjoyment of breathtaking views at every hand.

Thus the visitor today can relive the glory Jefferson felt in Monticello's matchless vistas when he wrote: "With what majesty we ride above the storms! How sublime to look down into the workhouse of Nature, to see her clouds, hail, snow, rain, thunder, all fabricated at our feet!" (Jefferson to Maria Cosway, 1786.)

Except for the seven arboreal patriarchs — two tulip poplars, two American lindens, a sugar maple, a European larch, and a copper beech —most of the trees in the house area are actually rather young. Monticello fell upon evil days in the mid-19th Century. Both grounds and mansion were neglected, the later being used for a time as a stable for cattle and swine who roamed the once beautiful gardens at will. Many trees planted by Jefferson were chopped down for firewood; others fell victims to storms and insect blights. Even the primeval forests along the lower slopes of the "Little Mountain" were leveled in an ill-fated attempt at silk-worm culture.

When the Thomas Jefferson Memorial Foundation, a patriotic, nonprofit organization, took title to Monticello and 658 surrounding acres in 1923, a priority item on its agenda was the complete restoration of the east and west lawns, including all the plantings mentioned in Jefferson's writings. But many years were to pass before the method and means of doing so became available.

Jefferson had made several very careful sketches of the mansion house grounds, and his plans for the landscaping and planting thereof. Three of his original drawings were

This original copper beech was snapped off by a storm in 1953. As *American Forests* went to press, "Hurricane Hazel" swept the Monticello grounds, destroying an original linden

This sugar maple is one of Jefferson originals

Many varieties of plants thrive in Monticello soil

found with the Massachusetts Historical Society, and his 1807 plan for the flower garden at the Pennsylvania Historical Society library. Permission to reproduce these was obtained, and scale drawings of the beds, borders, walks and the placement of trees and shrubbery made. But it was not until the late 1930s that two committees, one from the Garden Club of Virginia and the other from the Foundation, cooperated to bring about the restoration of the area. Funds were provided by the Garden Club of Virginia from tickets sold on its annual garden tour of the State.

On a recent visit to Monticello I was fortunate in having as my guide on a special tree-study tour of the grounds Dr. Edwin M. Betts, Professor of Biology at the University of Virginia, and a member of the restoration committee of the Thomas Jefferson Memorial Foundation. Not since Jefferson himself has anyone been so closely associated with and so well versed in all the trees, flowers, and shrubs of the mansion house area as Dr. Betts. Constantly as we walked around he examined or made notes on the growth, condition and even the labelling of certain specimens, evincing a quiet enthusiasm that would have delighted Monticello's original master as much as his knowledge of both common and generic names, and origin of each.

Dr. Betts, who also edited the monumental reprinting of Jefferson's "Garden Book," published by the American Philosophical Society in 1944, said that many sources had been consulted in the restoration project. In addition to the "Garden Book," helpful data were found in Jefferson's "Weather Book," his voluminous correspondence and in personal memoranda.

"About how many different kinds of trees were mentioned by Jefferson in his references to the mansion house area?" I asked, as we rested a moment on a bench along the south terrace beneath a huge yellow poplar or tulip tree.

"I would say about 85 or 90 different species, but only 36 of these were included in the restoration planting plan," he replied. "You see Jefferson doesn't always say exactly *where* he had certain trees, so we had to use our judgment in locating them. Some of those mentioned did not survive the climate or certain blights, so there would be little point in replanting them. But a lot of Jefferson's favorites are here, including the mimosa or silk tree, mentioned so often in his writings, and the Osage orange."

We followed the winding gravel path, which Jefferson called the Roundabout walk, to a fine stand of trees along the south side of the west lawn. Along the way, near "Honeymoon Cottage" where Jefferson brought his bride to live before the mansion was finished, lies a small oval pond.

"This was Jefferson's substitute for a fish ice-box," Dr. Betts explained, adding that fresh-caught fish destined for the Jefferson dinner table were kept alive in this pond until the time they were to be cooked. There are no fish in it today, but photographers favor it as a reflecting basin for artistic shots of the mansion and enveloping trees.

From this vantage point you can see the wisdom of Jefferson's choice of trees that would shade but not overwhelm the mansion house. Over the roof can be seen the dark green tips of two massive American lindens that stand a little apart from the house on the east lawn. Flanking each side of the house, along the north and south terraces, is a paler green yellow poplar or tulip tree. Each of these once mingled its branches with a gorgeous purple or copper beech. But only the original beech along the north terrace has survived. A terrific windstorm in the spring of 1953 took its matching mate, although a small replacement seems to be doing well.

Halfway along the Roundabout-walk you won't have any trouble spotting another of the original Jefferson trees—a wide-spreading sugar

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The Stanford Report

A. Kenneth Beggs, left, senior economist at Stanford, was director of wood demand study for the Weyerhaeuser Timber Company. He is shown with Gerald S. Gilligan, project leader for the study, and Howard C. Nielson, a Stanford research economist

A recently-completed report by the Stanford Research Institute is significant news in forestry. Here are some of the major conclusions of the research group

By NARD JONES

SOME of the most interesting news in the whole history of American forestry lies in the pages of a very ordinary-looking report which has just been completed by the Stanford Research Institute of Palo Alto, California.

Not only is it a very ordinary-looking report, at first glance, it is a formidable one, running more than 400 pages of texts, charts and tables. To the average reader, even the 80-page "summary" might seem forbidding.

Yet actually this is one of the most dramatic stories of our generation—and particularly for those of us who are interested in our American forests—since it marks the first time that the wood industries have made a really determined effort to prove the wood future in terms of their own enterprises.

Thus the report is an encouraging study of past progress; and an interesting peek into the future—as far ahead as 1975. This, of course, means that this study will be carefully compared, and with profit, to the much discussed Paley Report of several years ago.

Yet the title of the report is as unpretentious as the report itself. It is called "America's Demand for Wood, 1929-1975."

That is a simple title indeed, but only a moment's thought tells us that any sincere fulfillment of the title would have to cover a lot of ground, and cover it to a considerable depth.

First, what is the Stanford Research Institute, and how did this study come to be?

Stanford Research Institute is a non-profit corporation affiliated with Stanford University. It was created at the suggestion of leading west coast industrial companies and is

supported by them. However, under the terms of the agreement with the University, these companies cannot in any way influence or guide the conclusions of the Institute on any given study.

More than a year ago the Weyerhaeuser Timber Company retained Stanford Research Institute to make the present study. In effect, the management of Weyerhaeuser said: "We want you to take a long look into the future, and project the demand for forest products, through 1975. We want you to look at the probable demand for lumber, wood pulp, paper, paper products, plywood, fiber products, and so on."

The Weyerhaeuser management added a further request. It was, in essence, this: "In projecting these demands, we want you to assume that we and other companies will fulfill them. And in that light, we want you to take a good look, too, at what the effect of this production—and consumption by the public—will have on our forest growth and drain."

This in itself was a singular request. So far as this writer knows, or has been able to ascertain, no study approaching the present one in scope or purpose, has ever been made before.

For while it is essentially a study of markets, present and future, it is far more. Inasmuch as it involves the forest products industries, it would have to be. By the very nature of the economy of our forests, such a study would have to tell a great deal about all of us in the next 20 years. The Stanford study does just that.

But this is not the only singular aspect to the Stanford study.

Weyerhaeuser had no sooner instructed the Stanford researchers as to what it wanted, than it turned to other companies in the great forest products industries and announced: "It is our intention to make this research available not only to all companies, but to foresters and the general public as well. In fact, it will be made available, for whatever it may be worth, to anyone and everyone who is interested."

That, too, is most unusual in the annals of industry — even the enlightened industry of today. But it does credit to the whole forest products industries as well as to Weyerhaeuser. For if the Weyerhaeuser management were not convinced that these industries had matured to the point where they will make

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What the Report Projects For Wood-Using Industries

CHIEF question likely to be raised by the average American in regard to the recently published Stanford Report sponsored by the Weyerhaeuser Timber Company—the one point he will fasten onto—is, "Why must lumber, which we prefer to most other building materials, continue to go up in price between now and 1975?"

This is a solid question and one which industry leaders will be carefully studying in future months and years. For this report definitely points to an industry where demand is dropping to the level of supply. In lumber, prices have risen as supply has fallen off. As a result, lumber has been losing markets to competitors and, according to this report, may lose more markets.

In order to be "soundly reasoned," the Stanford group based its projections on three assumptions. These are that the years 1954 to 1975 will not see an all-out war; that business cycles will continue to enjoy a greater degree of stability; and perhaps most significant, that those years will see no radical changes in technology that will greatly increase production and thereby render previous forecasts useless.

And as this Report itself shows, industry is already mobilizing to see just how quickly this latter assumption can be upset by placing more and more emphasis on research. As the Weyerhaeuser Company reports in its own separate conclusions, the forest industries are now "alert and will be increasingly alert" to the possibilities of improved forestry and logging practices and that as competition and technical developments proceed, "more and more products will be made with relatively less drain on the forests."

Basing their findings on the three predetermined assumptions, the Stanford researchers found that the price of lumber relative to those of competing materials will continue to increase, although less rapidly than in the past, and that lumber will lose part of its markets. Plywood prices will also increase, the report says, but less so than lumber. Pulp and paper prices will continue about the same in relationship to competing materials while the cost of hardboard and insulating board will decline.

The probable price structure of wood products predicted by the Report explains, in part, why total domestic requirements for sawtimber to millsites are expected to increase by only 3.4 percent between now and 1975. However, total domestic requirements for all timber to millsites, in cubic feet, will probably increase by around 14 percent—which reflect the increased use for pulp and the shift in all regions to smaller logs. A major decline in fuelwood consumption is predicted by the Report. By 1975, fuelwood will be used chiefly in fireplaces and will have virtually disappeared from use for heating and cooking.

Why will lumber prices probably continue to rise? There are four chief reasons, the Report says. These are: 1) Costs of stumpage will increase as the supply of available and readily accessible timber is reduced. Much will depend on amounts cut from government-owned timber, especially in the West where two-thirds of the timber is government-owned. Timber production on public lands has been rising in recent years but is still below the allowable cut called for by sound forestry, the Report says. 2) Logging costs are likely to rise as activity shifts to relatively remote areas in regions with rugged terrain involving more difficult operations and higher transportation costs. Logging of lands with less volume per acre, and the declining size of trees being cut, will also raise logging costs; 3) Manufacturing costs will probably be increased by the declining size of logs, rising labor

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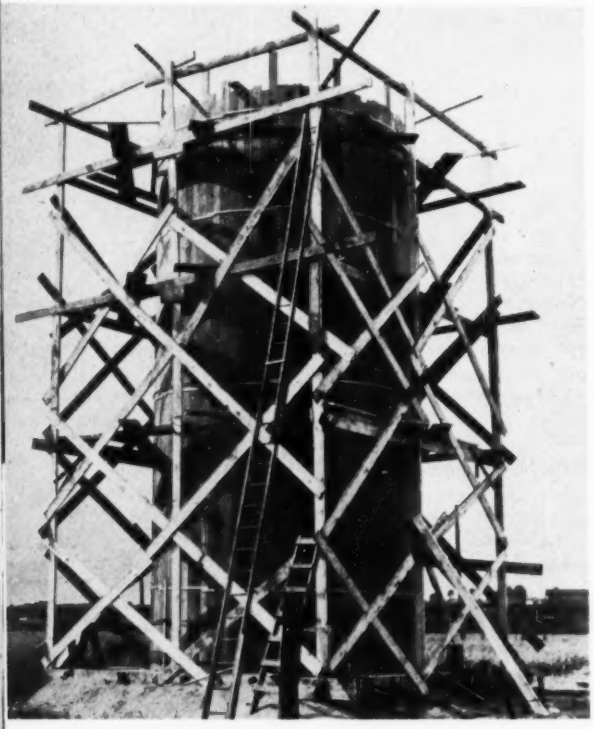
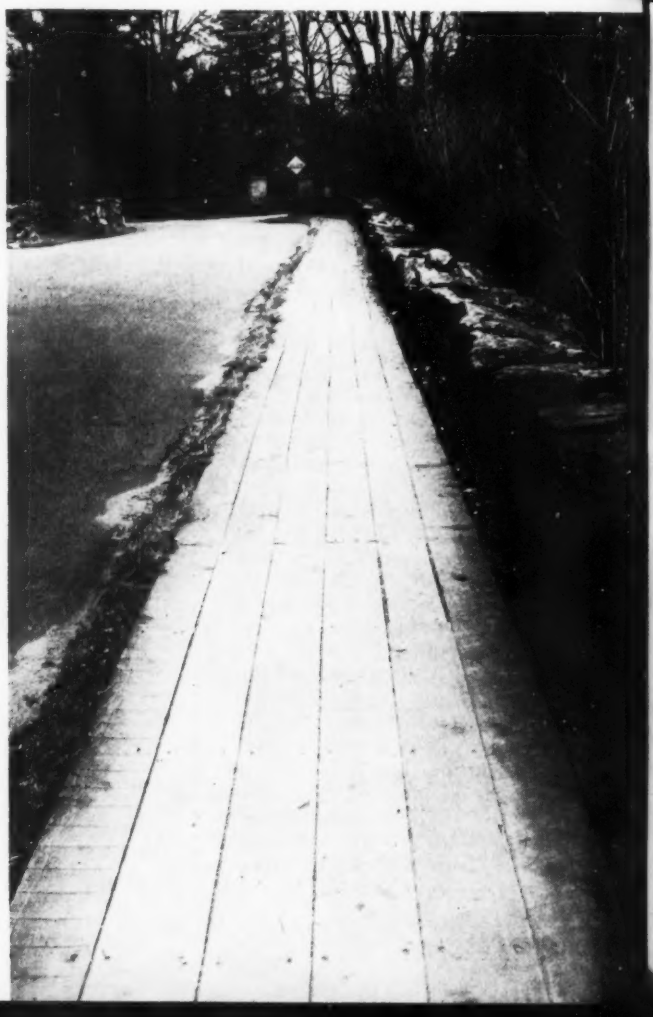
Pressure treatment with preservatives can help stretch the nation's wood pile to meet future demands—and reduce the drain on our forests

Boardwalk at the beach (above) and wooden side walk (below) are made more durable by pressure treatment



Pressure treated, this silo is built to last



Preservatives extend the life of picnic tables

Prolonging Timber Life

By R. L. OSBORNE
Engineer, Service Bureau, American Wood Preservers' Assn.

Timbers for bridges like this one on the Alcan highway are treated first then sent to site for installation

THE help that Mother Nature may require in stretching our wood pile to meet future demands is readily available from the American wood preserving industry, which has had 90 years experience in prolonging timber life.

The fast population growth which the nation now is experiencing means heavy future drains on the forests of America. Supplying the increased demand will necessitate better utilization and extension of service life of timber. Luckily, pressure treating of wood will do both these things!

Wood has been one of the most universally used building materials since prehistoric times. The permanence of wood is evidenced by many houses built a century and more ago, in which original wood members are still intact. Long life of wood structures can be assured by good construction practice, and preservation of timber exposed to decay or termites.

Continued use of wood under conditions of severe deterioration has been made possible by proper preservation. Progress in wood preservation has produced a fourfold increase in the life of railroad cross ties, fence posts, piling, poles, and structural timbers. The timber resource savings effected are in direct proportion to the increased service life of wood.

While timber conservation is one of the most obvious benefits resulting from wood preservation, other gains are of equal importance. Use of preserved lumber where essential in houses and farm service building results in immediate financial savings through reduced maintenance costs. The increased service life of wood also means that it will be increasingly substituted for competitive materials, thus broadening lumber markets. Recent trends in wood preservation indicate that major gains will be made in the near future.

Wood deterioration is caused mainly by decay, termites, and marine borers. Although only a portion of all wood used in construction is exposed to damage, the annual losses are substantial. These losses can be drastically reduced by proper wood preservation.

Decay causes the greatest damage to wood. It occurs wherever the moisture content reaches a favorable percentage. Standing rain water, condensation, wood in contact with concrete or the ground and roof leaks are the most frequent situations which raise the moisture content of wood and bring decay. "Dry rot" fungi conducts moisture to dry wood and will thus destroy it. But the total damage is considerably less than that caused by ordinary decay.

Termites cause the most damage to wood structures of any species of insects. Subterranean or ground-nesting termites are the most common type. They must have access to damp soil and maintain access by means of earth-like shelter tubes. Dry wood termites often cause serious damage in houses, but they are important in only limited areas in southern Florida and on the Pacific Coast. Dry wood termites need not have access to a source of moisture and will attack dry wood. The annual damage caused by termites 20 years ago was estimated at more than $40 million. The estimate was made by Dr. Thomas E. Snyder, senior entomologist (retired) United States Department of Agriculture. In a recent interview, Dr. Snyder stated that losses from termites are now more than twice as great. Marine borers are found in salt waters and attack untreated wood in docks, wharfs, and similar structures.

Among preventive measures that have been used are better construction practices, mechanical barriers, and use of pressure treated timber. Fortunately, pressure treatment of wood by a standard preservative is effective against both decay and insect attack.

Knowledge of wood preservation dates back to the ancient Chinese and Egyptian civilizations. The modern industry had its beginning with the development of the pressure treating process in England in the last century. Pressure treatment means placing wood in an air tight steel cylinder and injecting preserva-

tive into the wood under pressure. it has several advantages over primitive immersion methods. Pressure treatment insures the injection of sufficient preservative, drives it deeply into the wood and distributes it uniformly through the treated area to provide adequate protection against decay and attacks by termites and other insects.

One of the most pressing problems confronting those maintaining timber structures in the 19th century was protecting wood against marine borers. The situation which prevailed in some of the sea ports of the United States is revealed in a news item which appeared in the July 5, 1879 issue of the *Engineering News*. The item stated:

"About once in three years wharves and docks on the Puget Sound, on the Pacific Coast, must be almost completely renewed, in consequence of the ravages of the salt-water worms."

After pressure creosoted timbers and piles were installed, however, many lasted for 40 to 50 years and were reclaimed, when the structures became obsolescent, for use elsewhere.

Difficulties in maintaining docks were also encountered in Holland. A commission was appointed by the Royal Academy of Sciences in Amsterdam to investigate the pressure treatment of marine timbers with various preservatives. The study lasted from 1859 to 1864; in its report the commission concluded: "The only means which we can look upon as likely to prove a true preservative against the havoc of seaworms, to which wood is exposed, is creosote oil. Yet in the employment of this means it is necessary to carefully keep account of the quality of the liquid, the manner in which the impregnation is performed, and the nature of the wood which is submitted to the process." The conclusions reached by the commission are the basic principles of modern wood preserving practice. The urgent necessity of preserving marine structures soon resulted in the general practice of pressure treating marine timbers.

The timber saving accomplished by pressure treatment is exemplified by the experience of the American railroads. In 1898, when untreated cross ties were ordinarily used, annual replacements amounted to 304 ties per mile of track. The growing scarcity of woods which were resistant to decay resulted in the experimental use of pressure treated ties. The economies effected were soon recognized and by 1910 pressure treated ties were commonly used for replacements.

Today, when all railroad ties in track are treated according to proven standards, the renewals have decreased from 304 ties per mile to 94 (five-year average 1948-53). Railroad officials estimate the daily saving to U. S. railroads because of the use of pressure treated ties is $775,000.

The experience of the railroads is duplicated by public utility companies in use of pressure treated poles for telephone, telegraph, and electric power lines. In addition to increasing service life, pressure treatment has made it possible to use many species which in their natural state were exceedingly short-lived. An example are many of the quick growth pines. Untreated they may last only three or four years; when pressure preserved, they will give outstanding service for 40 to 50 years.

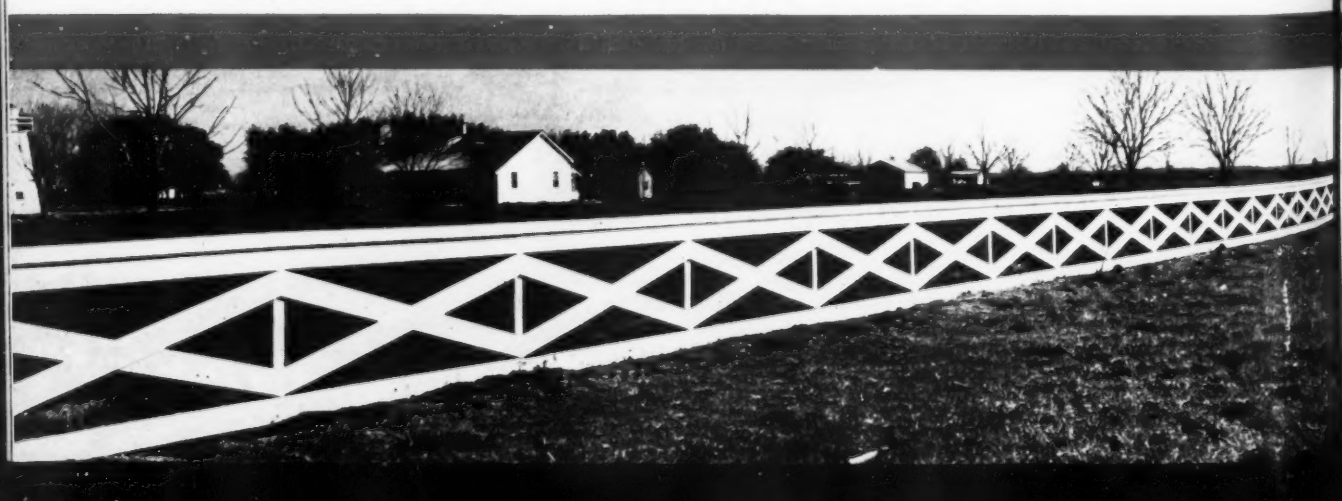
The importance of pressure treatment on timber conservation can be measured by service records of treated wood and statistics on the volume of timber treated. Service records maintained by the American Wood Preservers' Association, in cooperation with the U. S. Forest Service, show that pressure treatment of fence posts increases their life from five or six years to 30 years and longer. Likewise the service life of cross ties, poles, piling, and construction timbers is increased from five to seven years for untreated timber to 25 years and more for pressure treated timber.

Timber treated by the wood preserving industry in 1952 amounted to 3.8 billion board feet. Since service records show a fourfold increase in service life, this means that the timber treated in 1952 is in effect doing the work of 15.2 billion board feet of untreated timber. The apparent saving of timber resources amounts to 11.4 billion board feet, which is equivalent to one-fourth of the nation's annual lumber requirements.

The resource savings accomplished by pressure treatment to the present time have been attained chiefly by the preservation of timber used in heavy construction and cross ties. One of the most promising fields for future conservation is lumber preservation. Less than two per cent of all lumber used in construction currently is pressure treated, despite the fact that great economies could be effected and the drain on our forests for replacement lumber could be reduced.

The advantages of using pressure treated lumber in building construction have been advocated for more than 30 years. In 1930, the wood preserving industry, in cooperation with the National Committee on Wood Utilization, published a bulletin titled "Treated Lumber, Its Uses and Economies".

The principles outlined apply to present day construction. However, recent trends in prices of materials and labor, availability of pressure



treated lumber, and technical progress in wood preserving, have increased the advantages of using pressure treated wood.

The sharp rise in the price of building materials and labor has caused builders to become more concerned with maintenance expenditures. The cost of pressure treatment has not risen in proportion to the rise in cost of other building items. For this reason, the economies resulting from the use of pressure treated lumber are greater than at any other time in history.

Contemporary architecture emphasizes trends toward ranch type homes and houses built without basements. These types necessitate greater precautionary measures against deterioration. The additional hazards are eliminated when adequate preventive measures are taken during building.

In house construction it is essential to treat those parts which are in danger of early damage by decay or insects. The pressure treatment of sills, joists, plates, subflooring and nailing strips usually is warranted. Careful consideration also should be given to the use of pressure treated lumber for such installations as steps, porch columns, hand rails, fences, porch decks, gates, car ports, boardwalks and outdoor furniture. Wood that is to be used in contact with or near the ground, in places where it will collect or retain moisture or where it is accessible to termites, should be pressure treated with a standard preservative. Usually the lumber needing treatment is a relatively small portion of the total used in building the house. The additional expense incurred for proper preservation is a negligible percentage of the total cost and insures freedom from costly repairs, which often must be made under difficulties. In securing the savings effected by the use of pressure treated wood it is important to specify its use while the building is being planned. Installation of pressure treated lumber in a building after it is completed nearly always is difficult and costly.

Many farmers are aware of the savings which can be made by using preserved wood. In recent years economic changes have had a drastic effect on farm operations. The rising national population has increased the demand for food. At the same time farm population has declined and the cost of farm labor has risen out of proportion to the cost of other operating items. The changes have forced most farmers to get the greatest possible efficiency from labor, materials, and equipment.

The need for greater farm efficiency has prompted the use of more treated wood. In the post-war period, 1946-53, an average of 11.5 million pressure treated wooden fence posts have been used on farms annually. Currently the output of pressure treated posts is about 23,000,000 per year. The increase is great in comparison to annual requirements over the previous decade, which averaged three million posts per year.

Greater economy in farm operation also has been made possible by pole frame construction. It is one of the oldest principles in building. In its modern application, pressure

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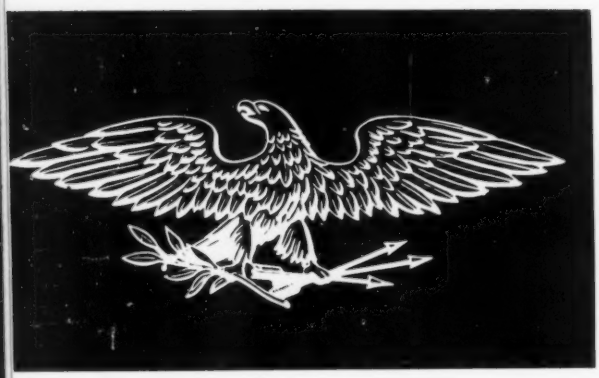
Fire retardant treatment protects against spread of accidental fire

"Kentucky" pattern fence, pressure treated, painted for long life



Forest Service Chief McArdle (with hat) and President at Missoula

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THIRTY thousand westerners crowded into Missoula, Montana, on September 22 to hear President Eisenhower give a "salute to the Forest Service of the Department of Agriculture and more particularly to the 'smokejumpers' of that organization." Purpose of the visit was the dedication of the new Aerial Fire Depot at the Big Forest Service base and the headquarters of the Smokejumper Program. Since the origin in 1939 of this program designed to reach fires quickly and snuff them out fast, Forest Service smokejumpers have made 20,000 successful jumps in inaccesible forest areas. To date, not a single man has been killed as the result of jumping, nor has any smokejumper ever incurred a permanent disabling injury from jumping. This safety record has been achieved in spite of the fact that the smokejumpers jump into some of the roughest country in the world.

"I first heard about the work of the Forest Service when I was still in the Army," the President said. "They helped to train the paratroopers who were so valuable to us in the war — their techniques and their practices and all their experiences were passed on to us, to give us some of the finest organizations that America has ever sent to battle.

"I am not at all astonished that it is such a good outfit," the President continued. "Within the last week I have had a little proof of the qualities of leadership of Mr. McArdle himself (Chief R. E. McArdle). It has been my good fortune to know him, but only two nights ago, in Fraser, Colorado, I was visited at my cabin by a cook, a cook in the Forest Service. (Andrew J. O'Mailia). And he said, 'I read in the paper you are going to Missoula. There you will see my boss, Mr. McArdle. Give him my greetings and best wishes.'

"I was long with the Army, and I have seen some of the finest battle units that have ever been produced," President Eisenhower said. "And whenever you find one where the cook and the private in the ranks want to be remembered to the General, when someone sees him, then you know it is a good outfit. I pay my salute to Mr. McArdle."

President Eisenhower continued by stating that the Forest Service Smokejumpers in "the course of their service to us, have saved millions of dollars in property. They have saved a crop that means so much to us, not only because of its value as lumber and paper and all that, but the time it takes to grow. Forty years is an average time for a pine tree to grow, and down in the Rockies 150 years for pole pines to grow the way we want them. To think what one devastating fire can do to such a crop in an instant, and what these people have done to save our crucial values!"

President Eisenhower said that he was not going to recite "to such a crowd as this all of the work that the Forest Service does. I think it is better—more appropriate—that I should call attention to this fact: each of us can do something to assist them, directly or indirectly, in their work. For us—for our children and our grandchildren — they are saving the priceless assets and the resources of the United States. And we can help. We can help by avoiding any of those careless acts that sometimes set these fires. We can help by joining in every kind of conservation practice and conservation organization that helps also to preserve these resources. In so doing, it seems to me we cannot fail to think more objectively, in a more sincere way, about this country, what the good Lord has given us in the way of priceless resources."

Departing from a prepared script he was scheduled to present at the dedication, the President referred to the fact that he had been introduced to the throng by an ex-Forest Ranger — "my good friend Wes D'Ewart" (Representative Wesley D'Ewart, of Montana). The President also presented his greetings to Governor J. Hugo Aronson. Two days previously, he had swapped recipes with Cook O'Mailia at Fraser who presented the President with one of his own pies.

In his remarks at the ceremony, Chief McArdle commented "it is a quarter of a century since a Forest Service man named Tom Pierson over at Ogden, Utah, got the idea of parachuting fire fighters to remote, inaccessible back-country fires. In this way he could get to fires in minutes rather than days — get to fires while they were small and easily controlled."

Today, after much research in developing aerial fire control by people like Pierson, the late David Godwin (who lost his life in a transcontinental airliner crackup), and General "Hap" Arnold, Chief McArdle reported that "Smokejumping now pays its way, and more, in safeguarding priceless watersheds. It saves valuable timber and protects jobs. It preserves the scenic and other recreational values of our western mountains."

President Eisenhower lauds smokejumpers, other U. S. Forest Service activities in Montana address

Salute TO THE SERVICE

Visitors at the big "open house" at Missoula were shown smokejumper and forest fire fighting equipment displays. They learned that the jumpers are highly skilled, hardy young men who go through the most rigorous training to prepare them for leaps into rough, mountainous terrain. During the summer fire season, the Forest Service employs approximately 250 smokejumpers. In a single season, as many as 354 fires are jumped, involving 1,335 individual jumps. The largest smokejumper group is based at Missoula, the geographical center and logical hub to cover the seven million acres of roadless areas in western Montana and northern Idaho. Other Forest Service smokejumpers are based at McCall and Idaho City, Idaho; Cave Junction, Oregon; Winthrop, Washington; and the Gila National Forest in New Mexico. The National Park Service operates a smokejumper crew in Yellowstone National Park and the Canadian government maintains one in central Saskatchewan.

A smokejumper wears a specially padded canvas suit, a football helmet with a heavy wire mask to protect his face against branches, heavy work shoes and gloves. A 100-foot rope is carried in a leg pocket of the pants so that a smokejumper can let himself down to the ground when he lights in a treetop, He wears a 28-foot parachute on his back and a 24-foot emergency chute on his chest.

As President Eisenhower observed, Forest Service techniques were adopted by the U. S. Army, in organizing the first Paratroop training at Fort Benning, Georgia's big infantry base. At Missoula, the Forest Service has also trained crews from the Air Rescue Service of the Air Force, the United States Coast Guard, and the Canadian Air Observers School.

At the Missoula "open house," most frequent question asked was "How do they do it?" The answer, Forest Service personnel said, first involves the cruise of a "spotter" over an area reported burning by either a lookout tower or a fire patrol plane. The spotter reports the location of the fire to the smokejumper base and makes an estimate of the number of jumpers needed to quell the fire. Upon reaching the fire, the transport plane carrying the jumpers flies over the fire at an elevation of 1500 to 2000 feet. As the plane flies over the fire, the spotter throws out a drift shoot to determine wind direction and velocity. The spotter notes where the

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Part of the 30,000 who heard President pay tribute to U. S. Forest Service

Playground

By HUGO H. SCHRODER

AT THE FIRST VISIT to the Lockhart Gaddy Wild Goose Refuge in North Carolina one is literally "seeing things," at least it is possible to see something which would have been believed impossible, if it had not been actually seen. You will see wintering wild geese by the thousands: and they will be under altogether different conditions than you ever thought it would be your good fortune to find them. You will be closer to a wild goose, not just one but a huge concentration of the big gray "honkers," than you ever expected to be.

Every goose hunter will tell you that the Canadas are the wariest and wildest of all the wildfowl. But anything is possible, as Mr. Gaddy has demonstrated by what he has been able to do at his farm pond. By kindness and consideration for his geese guests, he has succeeded in winning their complete confidence.

He had constructed a one-acre fish pond on his huge farm in a wooded area where a spring supplied the necessary water. This pond was built for the use of his mother-in-law, whose failing eyesight prevented her from going to public fishing places, therefore this fish pond was to be a "private" fish pond for her, but it was destined to be something altogether different!

With the building of the pond, it became the headquarters for the decoy Canada geese which Mr. Gaddy had used in his earlier goose hunting days. These former "decoys" saw migrating Canada geese passing over each fall and spring. Calling to the wildlings, they succeeded in persuading nine of them to descend to the pond about 20 years ago.

Even though he had formerly been an ardent hunter of geese, the arrival of the nine wild geese completely changed Mr. Gaddy into just as ardent a protector and conservationist. Instead of shooting the visitors from Canada, as he could so easily have done, he tried to make friends with them.

As was to be expected, these geese flew off when Mr. Gaddy arrived at the pond. He put out some ears of corn which the birds did not accept, either then or later that autumn; they did, however, return after Mr. Gaddy left.

Noting that the geese did return, he tried again and again to become friendly with the visitors. Each time they flew off at his appearance, but they always returned. Time and again he visited the pond, but to no avail.

Came the spring, when the visitors took off for Canada and their nesting grounds.

When autumn came, the Gaddys hoped that the visitors of the previ-

of the Goose

ous year would return. What was their joy to see more than 30 geese at the pond in October.

Again Mr. Gaddy tried to become friendly with the geese; more corn was put out for them; still they refused to accept the food offered. Undaunted by the birds' refusal of the food, he kept trying. What was probably more important, he protected the birds from being shot at.

When the nesting urge came, the geese again took off for Canada. The following fall there were more than 100 geese at the pond. Evidently all the offspring had come with their parents.

Still Mr. Gaddy tried to gain the friendship of the geese. He did not succeed that winter but he believed "that if at first you do not succeed, try, try again."

It was more than three years before the geese decided that they could trust their host. They began to partake of his offering of food. From that time on, they became more and more friendly whenever they returned in the autumn.

When Mr. Gaddy first saw the geese, he little dreamed that the little fish pond where they arrived would one day become the scene of a concentration of thousands of wild geese; but that is what actually happened. Each autumn the geese came in increasing numbers, becoming friendlier at each appearance.

It was 1946 before I finally made a visit to Gaddy's to see for myself what the picture possibilities were there.

Arriving at the Gaddy home, I found that the pond with the geese was a mile and a half distant, so Mr. Gaddy cranked up the family car and started for the pond to show me his geese. The pond was visible from the top of a hill. As we arrived there, he stopped to show me the most amazing sight of the huge concentration. It really was a revelation, far different than I had anticipated, for several thousand geese swam about there, or moved about on the shore.

I fully expected every goose to take flight at our arrival, but not a bird made any effort to do so; they just moved away from shore. But when Mr. Gaddy went to a shed for some shelled corn kept there, the birds moved in closer again; the familiar basket which he carried, was a sign that the geese instantly recognized

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The late Lockhart Gaddy and his Canada geese guests at Ansonville, N. C.

Photos by the author

Forestry in the FAO

Deputy Director of United Nations unit sees need for more active role by the United States

FAO's Egon Glesinger

FOR its own good and that of the rest of the world, the United States should more actively participate in the forestry program of the Food and Agriculture Organization of the United Nations, Egon Glesinger, FAO's Deputy Director of Forestry, told AMERICAN FORESTS last month.

In Washington for a brief stay en route from Rome to Buenos Aires and a South American pulp conference, the author of "The Coming Age of Wood" said that while the United States has supported FAO, both financially and otherwise, since its inception, that it has a tendency to stand back and give "advice" to foreign countries instead of delegating more manpower, like England, to actively sit down and participate in FAO programs and then follow through on them. This is true in the case of Latin America. Also in Europe, he thinks.

"For example, on this particular visit one high-placed man in the Forest Service informed me that Americans ought to lick their own forestry problems in the United States before they start telling other people how to do it," Mr. Glesinger said. (Asked to comment on this statement, a representative of the Forest Service replied that the United States has supported FAO and probably will continue to do so but that the Forest Service would be "severely criticized, and rightfully so" were it to spend too much time on world forestry affairs in view of the job still to be done at home.")

The fact the development of a world forestry program is a slow, difficult process was attributed in part by Mr. Glesinger to the "spirit of nationalism that is rampant" in the world today. For example, some headway has been made in a proposed reforestation project urged for Mediterranean countries but it is "very difficult" he said. Also, there is too much of a tendency to "seize on the happy phrase, pass a resolution about it, and then drop it," Mr. Glesinger stated. What the world needs today is more of the true spirit of international confidence that characterized the free countries during the war years, Mr. Glesinger said.

The immensity of the task facing FAO's forestry staff of 25 (15 at the Rome headquarters and 10 to "cover the world") was described by Mr. Glesinger as he broke the work down in terms of "developed" and "underdeveloped" countries. In the developed countries, nationalism is the big hurdle, he said. In underdeveloped countries, FAO has to start from scratch in providing technical assistance and by encouraging governments to set up forestry administrative frameworks including Forest Services. Here, FAO has to help provide the forestry foundation on which to build including the encouragement of industry to adopt enlightened management programs.

As set up at Quebec in 1945 by 42 governments and as now supported by 72 governments, FAO was given two prime missions. These were: to arrange world conferences to stimulate international cooperation and to engage in studies on subjects of broad, world-wide purport, examples of this being Forest Policy and shifting cultivation studies. Later, as the need for it developed, the forestry branch added technical assistance missions to its overall program.

For the benefit of people who sometimes ask "Just what does FAO do?" it might be reported that the organization's motto—*Fiat Panis—Let There Be Bread*—means bread in a universal sense or that all the peoples of the world should be encouraged, through self-help and education, to make better use of the products of farms, fisheries and for-

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Speech at Portland

Besley Launches Association's Program for American Forestry

I SHOULD like to recite again the three major goals which the Program for American Forestry sets up, for every subsequent recommendation and everything we do to implement them is aimed at attaining these goals:

1) To meet the essentials of forest protection.
2) To improve the national timber crop in volume and quality to a degree sufficient to meet all probable future requirements.
3) To obtain the maximum of economic and social services from our forests by realistic application of the principle of multiple use in their management.

Activation—Before proceeding to our plans for carrying out specific recommendations, I should like to bring out three important points:

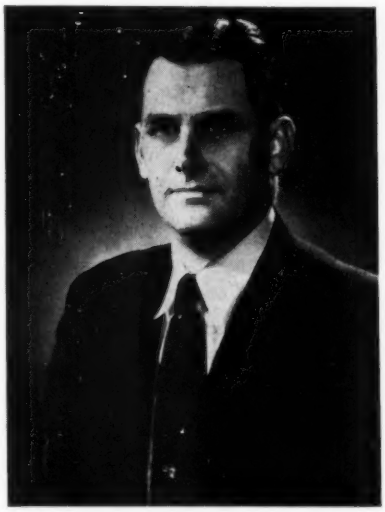
1) This is a cooperative effort. AFA never intended to, and definitely cannot, carry out these recommendations alone. From its initial conception and through its entire evolution, it has been a program for *all* of American forestry, and transcends all organizational and all special interests lines. It is everybody's job. But since what is everybody's job has an inevitable tendency to become nobody's responsibility, and since both the objectives and the membership composition of The American Forestry Association give it a universal interest in, and a broad general concern for, all uses of our forests and allied resources, we in AFA have undertaken to seek general acceptance of this Program, and to work shoulder-to-shoulder with other private and public agencies in carrying it out.

2) We must concentrate our efforts to build strongly and lastingly from the ground up. Our Program is like a house. Its three major goals are the architect's drawing of the completed structure. The various recommendations are the rough sketches of the component parts. We cannot erect the walls until we have laid our foundation. We cannot put on the roof until the walls are ready to support it. The whole Program is an immensely complicated structure of many parts, each making its essential contribution to the completed whole. We have yet to complete the detailed blueprints of each part, but we have drawn up the framework into which each one will fit. We have our master plan and can proceed slowly but with confidence to fill it in.

3) AFA must grow with its increasing responsibilities and opportunities for service. The Program is tremendously broad and as it becomes activated step by step, with more and more individuals and organizations participating in the movement, there will be an ever increasing need for cooperative assistance in making these constantly accelerating efforts contribute their maximums toward attaining the major goals of forestry. AFA will require many more members, greater activity on the part of each member, much more financial support, and a larger staff, if it is to meet the responsibilities it has undertaken in launching this Program.

Immediate Plans—This last point brings up our immediate plans. So far we have been talking in generalities. What specific steps can we take now to translate this Program into action?

1) Our present major asset is our excellent monthly magazine, AMERICAN FORESTS. This has already done yeoman service in publicizing and explaining our Program and reporting on what is being done. We shall continue to use it to keep the Program constantly before us and our friends and to report on plans and progress made both by groups and individuals working with us or along parallel lines.



The first major step toward the implementation of The American Forestry Association's Program for American Forestry was taken at the Association's recent annual meeting in Portland, Oregon when Executive Director Lowell Besley (above) outlined a plan of attack on some of the problems the Program is designed to overcome. Describing a study of forest landownership as a priority item in the Program, Mr. Besley said such a study would form the solid base from which this phase of the Program must be built. He emphasized, however, that this study, as well as other proposed studies, must be very thorough and as a consequence will take some time to complete. Until all the facts are in and properly analyzed The American Forestry Association favors maintaining the *status quo*, Mr. Besley said, stressing again that the Program cannot be built on a shifting foundation

2) Our annual meetings, such as this one here, can be a powerful force both in bringing us together to discuss what we and our friends are doing and in enabling us to see first hand the conditions and problems to be met in carrying out our Program on the ground in the various regions of the country. Likewise they give us an opportunity to observe progress, and furnish us with many new ideas to take with us and apply in our own home areas.

3) Our magazine and our annual meetings alone, potent as they are, cannot carry out the specific recommendations in the Program, although they are invaluable in keeping them in focus and in spotlighting progress. Instead, for each separate recommendation we must have a special plan to carry it out. In the time remaining to me this morning, I should like to outline for you briefly a plan for implementing the recommendations for a study of Forest Landownership and then just mention suggested plans of attack on two other recommendations which it seems to me should be tackled first by AFA itself. Among them, these plans are suggestive of possible approaches to many other recommendations in the Plan for American Forestry. In addition to Forest Landownership, I should like to say a word about insects and disease and forest fire insurance. Since this paper had to be prepared before our Board of Directors' meeting yesterday—the first meeting since the referendum—the plans are not yet official. In the future, the Board of Directors, with the assistance of specialists and other leaders it will call in as needed for advice in the different fields, will establish priorities each year and set up special national committees as required for the year's program.

Study of Forest Landownership—The section of the Program which received most comment, although 97.5 percent of the voters still endorsed it, was that with respect to Forest Landownership. Of this 2.5 percent of unfavorable comments, over a fifth objected to the proposed arrangements for the study and well over half objected to the statement at the end of the section: "The American Forestry Association reaffirms its long-standing support of federal and state forests. As a general rule, it should be the national policy to leave in private ownership most forest land having reasonable prospect of effective management thereunder; and to extend state or federal holdings for timber production chiefly in land types not having such prospects or where there is need to complete

existing public units. Future federal purchases or exchanges should not block the extension of state forests or of sustained-yield private management." Fifty voters interpreted this as expressing a predilection for public or federal ownership or control even before the proposed study was begun, while eighteen took the diametrically opposite view that the statement implies a preference for more private ownership or provides inadequate safeguards for existing public land. Other comments labeled it as double talk, as sitting on the fence, as contradictory or like saying we are against sin. In addition to those disapproving the statement, many who approved it asked us to clarify just where we stand on the question of landownership.

The fact remains, as our Program clearly states, we believe that the status, responsibility and action as respects the management and use of lands for forestry purposes needs to be clarified. That is the reason for recommending a study in the first place, before we are prepared to take a firm stand. Pending the findings of such a study, it would seem prudent to maintain the status quo as between public and private ownership.

In proceeding to the implementation of the section on Forest Landownership, it should be recognized at that start that the proposed studies involve a calculated risk. People feel very strongly on this subject, and there is an inordinate amount of name-calling going on amongst those with contrary views. Each accuses the other of being motivated entirely by selfish interest, while he himself is actuated wholly by a high-minded and unselfish desire to serve only the public good. The sincere belief of each is conditioned by his own knowledge and personal experience. Wise decisions and the formulation of sound policies are difficult in such a warm and turbulent atmosphere. They must be based upon comprehensive and objective studies guided and pursued by a group of the highest integrity and possessing among its members a broad knowledge of all the important resource uses involved and of the best interests of all classes of owners. All needed facts must be gathered, assembled and organized. They must then be interpreted correctly. And lastly, policies and courses of action must be formulated, based on those interpretations.

Joint Congressional Committee—The Program for American Forestry recommended this study at two levels—national and state. To pursue the study at the national level there is proposed a Joint Congressional Committee, consisting of members of the Senate and House Committees on Interior and Insular Affairs, the Senate Committee on Agriculture and Forestry and the House Committee on Agriculture.

The basic reasoning behind this recommendation is that the members of the powerful Congressional Committees who are in a position to set up federal land policies should be the very ones who should be made acquainted with the basic facts. It can be argued that Congress is too busy to study the problem and would not give it adequate consideration. Actually it is not supposed that this can be completed in one session. The Committee can continue as long as needed. But certainly a start must be made soon.

We propose to set up a small national group of people familiar with the problems to outline the suggested objectives and instructions for such a joint Congressional Committee and to draft for introduction in the next session of Congress suitable legislation for its creation.

Such a Congressional Committee will have plenty of material to investigate even before the State Governors' Committees, also proposed in the Program, are ready to make their reports. The Forest Service in the Department of Agriculture has recently completed the field work on a careful study of all national forest boundaries and is currently reviewing them preparatory to making recommendations for eliminations or acquisitions of national forest land to the National Forest Reservation Commission at its next meeting, probably early in the forthcoming session of Congress.

The Department of the Interior has five bureaus concerned with the administration of forest lands, each operating under a different land policy, each having serious problems of land administration, and each carrying on a more or less constant study of its land areas. For example, the National Park Service has been examining critically, area by area, its National Parks, National Monuments, National Historic Parks and other areas, and not less than 17 different areas are, or will be, under consideration by Congress. There is a serious problem of privately owned land within the outside boundaries, in a number of National Parks, and the steady rise in real estate values makes future acquisition of this private land an increasingly remote possibility. In such cases, adjustment of outside boundaries to exclude large blocks of land not belonging to the Government may be the only feasible administrative measure. In a few instances National Parks have been created which serve principally as city parks and should be taken over by the cities they serve, but the local people are understandingly reluctant to assume the cost of maintenance if it can continue to be paid for with federal funds.

The Bureau of Land Management has charge, not only of much valuable forest land which reverted to the Government and to millions of acres in Alaska, but also of the remaining Public Domain. It has a special problem with respect to the sections of land to which each state is entitled in lieu of Sections 16 and 36 of each Township where the latter had been reserved by the Federal Government. In many cases the states have not selected this land to which they are entitled and the Bureau does not know what it owns and what it does not own. This is just one of the headaches in regard to the unreserved Public Domain. And of course apportionment of receipts from sales of timber and from grazing leases to local governments in lieu of taxes are different on Bureau of Land Management forest lands than they are on national forests, —to mention another result of the varying policies of different federal departments and bureaus.

The Bureau of Reclamation in Interior and the Corps of Engineers in Army have additional problems of forest landownership along dammed up rivers. A sound federal land policy during the planning stage could prevent many subsequent difficulties.

The Indian Service is in the process of gradually withdrawing its administration from Indian lands, and this will create serious problems as to the subsequent proper management of these lands. Some reservations already authorized to be relinquished contain very productive and valuable forest land.

Lastly the Fish and Wildlife Service has jurisdiction over the 274 National Wildlife Refuges aggregating nearly 17.5 million acres. Here again, policies of acquisition and management have been developed independently.

There has been some attempt to unify policy among the bureaus in one department, and between departments, through conference and written agreements, but this is still far from successful. Several of the task forces of the Hoover Commission are working on different phases of this problem, but the approach is rather piecemeal, and it is unlikely the Commission will be in a position to recommend a sound, over-all land policy.

The Joint Congressional Committee, on the other hand, would have available the results of all these studies and statistics plus, in due time, the reports submitted by the Governors' Committees from those states undertaking studies. Also, its members have to pass on much of the piecemeal legislation on separate parks and forests which is forever being considered by Congress. With such a broad base of information, it would be in a position to establish a sound federal land policy which could guide federal activities for many years to come.

State Governors' Committees — Some of you may not have noticed on page 42 of our June AMERICAN FORESTS that The American Forestry Association requested the Council of State Governments to pass the following resolution:

"BE IT RESOLVED THAT the governor of each state appoint as soon as possible a committee including a cross-section of the landowning citizens, the appropriate state officials, and the representatives of the federal bureaus administering federal lands in his state to report to him on the conditions in his state as they relate to a desirable pattern for ownership of federal, state and private forests, range and other conservation lands, and desirable policies and necessary legislation to achieve this pattern both on the state and federal levels. BE IT FURTHER RESOLVED THAT the governor of each state make available as soon as practicable to the Congress of the United States the report of the above committee to the end that appropriate federal action may be taken to formulate and implement a sound federal forest land policy which will help to achieve a desirable pattern of landownership in all the states."

The Executive Director of the Council of State Governments furnished copies of this resolution and of AFA's letter of trans-

mittal to all the governors at their meetings at Lake Placid this summer, but no action was taken. This was not particularly surprising and the same lack of response would be expected to a letter from AFA to each governor individually.

To implement this recommendation, The American Forestry Association proposes the following procedure. It will first convene a small national committee to do the following:

1) Review the composition and procedures of, and the results obtained by, similar forest landownership study committees formed several years ago, such as the California Joint Legislative Interim Committee on Public Lands, the Indiana Economic Council, the Farm Forestry Committee of North Dakota, and South Carolina State Technical Forestry Committee.

2) Prepare a suggestive general outline for a state study indicating the suitable composition of the committee, likely sources of information, staff requirements, probable costs, needed determinations, form of report and suggestions for establishment of a state committee.

3) Determine priorities of representative states in which studies are most likely to be prosecuted successfully.

4) Prepare a list of names of suitable persons in each such state to organize a campaign to get the study started.

After the national committee has completed the first four steps, the AFA staff would then arrange a meeting of the suggested organizing committee in the state of highest priority. At this meeting the suggestive general outline prepared by the national committee for a state study would be presented by the AFA staff member and discussed by those present. This group, and such others as it cares to add, in this and subsequent meetings, will then draw up a plan to wait upon the governor with a suitable study plan, including suggested membership composition, general outline of study, and needed state appropriations. The state organizing committee would be expected to carry on in any way required until the governor has actually appointed the study committee, the needed appropriations have been provided, and the study committee starts to work. The AFA staff, however, would not be represented after the first meeting of the organizing committee except by special invitation, and then only in an advisory capacity. This should be a state effort.

After the organizing committee has been started in the first state, the same procedure will be followed in each successive state in order of priority as time and facilities permit.

Other Sections—Time will not permit me to describe in detail our approach to each part of the Program, and indeed we have not worked out the details on most of them. This, as indicated above, will be done as rapidly as possible, with care not to "bite off more than we can chew" at any one time. I might mention here very sketchily a few ideas on two other recommendations.

In insects and disease, we hope to arrange special regional conferences for planning and coordination, and we would plan to assist in arranging for regional workshops

Highlights of AFA's PROGRAM FOR AMERICAN FORESTRY

DRAWN up by distinguished leaders in all phases of forest and allied conservation, discussed and enlarged upon by a group of nearly 800 conservationists and public-spirited citizens at the Fourth American Forest Congress in 1953 and perfected and finalized by AFA's Directors with technical experts assisting, the Program for American Forestry was overwhelmingly adopted in 1954 by referendum vote of the members of The American Forestry Association. The Program recognizes three immediate goals for a national policy in forestry:

1. To meet the essentials of forest *protection*.
2. To improve the national *timber* crop in volume and quality to meet all needs.
3. To obtain the maximum of *economic* and *social services* from our forests.

The Program makes recommendations in five major fields:

I—Forest Landownership: Establish a joint Congressional Committee and a Governor's Committee in each state to determine a desirable pattern for ownership of federal, state and private forest and other conservation lands, to formulate policies, and to recommend legislation.

II—Forest Management: Improve protection, forest practices and needed planting on both public and private forest lands. Protect forests effectively from fire, insects and diseases. Practice sound forestry on all lands devoted primarily to timber production, with special attention to cultural measures, harvesting methods, access roads, full timber development, full use of trees cut, encouragement of consumer demand for available products, education of forest owners, and development of sound state forest policies for private forest land. Plant or seed inadequately or incorrectly stocked forest lands to restore them to valuable productivity.

III—Multiple-Use Policies: Establish priorities and plans to enable each forest area to contribute its maximum in products and services, including Conservation of Water, Forest Recreation, Grazing on public lands, Mining on public lands and Wildlife Management. Adjustments between conflicting uses and benefits must be made reasonably and fairly.

IV—Education and Assistance to Forest Owners: Public and private agencies continue, expand, improve and coordinate, with careful division of responsibilities, programs to educate and assist owners of small forest properties and small conversion plants. Improve forest taxation and forest credit and insurance facilities. Strengthen professional forestry training and intensify public education in forestry matters.

V—Forest Research and Surveys: Expand, determine responsibilities for and coordinate both fundamental and applied forest research, and speed up publication and application of findings. Continue and accelerate the forest survey and the participation of state and local industries in it, and provide for periodic reviews and improved techniques.

IMPLEMENTATION: The American Forestry Association accepts responsibility for publicizing and obtaining general acceptance of this Program and for advancing its recommendations nation-wide by state and national actions as they appear practicable.

for practicing foresters, to teach practical identification and control of insects and diseases most important in each region.

In forest fire insurance, an article in the October issue of AMERICAN FORESTS states the problems. First, an exploratory committee will be established to consult with such groups as the Insurance Department of the Chamber of Commerce of the United States and others who have studied this problem and to outline a plan of action. Subsequent activity will be in accordance with this plan.

During the past year and a half, The American Forestry Association has devoted most of its energies to formulating this Program for American Forestry. It is broad and long range. Although it will undoubtedly be revised from time to time to keep pace with changing conditions, and although it must be carefully adapted to local needs and to meet local situations, it is a guide to action which we can follow with confidence for many years to come. It has determined our stand on several issues already and will continue to do so on major issues in the future. This is good. But we must not be content to use it simply as a policy statement to guide us in actions of the moment and to sit back and see what happens. Instead, we must attempt to carry out each recommendation aggressively. The staff of AFA pledges itself to do everything in its power to push this Program forward strongly, soundly and effectively, but its efforts will, by comparison, be puny indeed, if everyone who can help does his utmost. The keynote of our Fourth American Forest Congress last fall and the keynote of this whole Program is cooperation. Let's keep it that way! If we call on you or a group of which you are a member to help out on a national, regional, or state committee or conference or plan, do so cheerfully. But don't wait for that. If you see where you or your group already does or can implement or help to implement any of the recommendations of the Program, please come forward, tell us what you plan, and then go to work. AFA can then serve as the clearing house, reporting to others what you are doing and telling you what others are doing. Thus we can together make every effort count the most.

Sprague Praises Goals of AFA

KNOWING the prime interest of your members in forest conservation I want to review some of the progressive steps which have been taken in this region to conserve our forest resource. I recall a conversation I had with the president of one of our land grant colleges when I came west over 40 years ago. He was extremely critical of the national forest service and unfriendly to the federal forest policy then developing. He was reflecting much of the prevailing local sentiment. And I recall the banquet down on Grays Harbor given to acclaim Mr. Ballinger on his return after resigning as Secretary of the Interior following his bitter controversy with Gifford Pinchot. In the mind of the pioneer lumbermen he was the defender of the good old American principle of freedom to exploit resources in the name of development.

Times have changed. The one-time foes of national forests have passed on or for the most part become reconciled to the new order of things. True, there are still points of controversy between private loggers and those who administer the publicly owned forests; but of late years more publicity has gone to the contention between graziers and the forest service over grazing privileges.

The West quite universally recognizes the need for public ownership of the watershed regions and for federal retention of its forest holdings. At the same time the West does not want to see any material expansion of federal ownership which in many states runs to over 50 percent of the acreage. In the last half-century westerners have learned to live and cooperate with the federal services administering public lands and forests; and usually any cry of "bureaucratic arrogance" is just a cover for failure to obtain private advantage. In short, the West accepts the principle that our national resources must be administered in the broad public interest, and has many groups alert to defend that principle.

Charles A. Sprague, former governor of Oregon, who delivered keynote address at AFA's meeting Sept. 6-9 in Portland

Forest conservation in the West, and in our country for that matter, is still young. It was just 50 years ago that the first organized attempt was made to put out a forest fire in Oregon. A crew of men employed by Louis W. Hill, owner of extensive timber lands from an old wagon road grant, suppressed a fire near Cascadia, in Linn County. Shortly afterward the Hill people built the first forest lookout on a mountain in the vicinity. Later some owners of timberland decided to form fire patrol associations for mutual protection. This was the origin of the organized effort to protect forests from fire which has developed into a cooperative system between the state and timber land owners, which covers virtually all the forest areas outside of national forests.

It was not until after the disastrous forest fires of 1910, particularly the three million acre fire in northern Idaho which claimed 87 lives, that the public was aroused to the need for state action. In 1911 the Oregon Legislature enacted a forest code and set up a representative board of forestry on a pattern which has been retained through the years. In 1913 Oregon pioneered with legislation making fire protection compulsory on all owners of timberlands and legalizing a fire patrol tax. Another forward step was taken in 1925 when cutover land was identified as forest land and brought under the same requirement for fire protection.

To encourage land owners to reforest cutover lands the Legislature in 1929 adopted a land classification act. Lands so classified are exempt from ad valorem tax but subject to a small annual fixed fee per acre and to sharing 12.5 percent of revenues from such lands with taxing bodies. This law has not worked particularly well. At present there are a million acres under such classification and two million more acres that are eligible are outside.

The next great step in forest conservation in this state was the grant of authority in 1939 to establish state forests, by which the state forestry board is able to administer thousands of acres of cutover lands that had gone to the counties under tax foreclosure. To date 809,000 acres are under this management. The reason that more acreage was not included in state forests is that in the 1940s private owners of timberlands changed their minds. Instead of regarding cutover lands as liabilities to be shouldered off on the counties, they saw an opportunity of retaining or acquiring those lands for private reforestation. Tree farms suddenly became popular.

Oregon pioneered in another phase of forest conservation. It adopted in 1941 a forest practices act, the first of the kind in the United States. This imposes on private landowners the duty of leaving a certain proportion of trees as seedstock or if the land was clear-cut, to replant the tract to

trees. Thanks to the cooperative way in which this legislation was prepared it was accepted by Oregon timberland owners and has been quite fully observed. Later a similar Washington statute was put to a court test and the U. S. Supreme Court sustained its validity. Thus an important principle has been established in law, that states do have the right to enact legislation for forest conservation on privately owned lands.

One inducement to accepting this "interference" with traditional rights of ownership was a fear that the federal government would assume such prerogative. State control was preferred over federal. I know there is still a body of opinion favorable to federal control; but the important point is that the states have begun to act while federal regulation of forest practices on private lands is still remote.

Other advances by legislation in this state include laws and appropriations to combat forests pests; a bond issue to finance reforestation of denuded areas like the Tillamook burn; a severance tax to finance the Forest Products Laboratory at Corvallis and for research in silviculture. This last program was sponsored by private forest interests, which shows how far their thinking has gone beyond the old concept of "cut out and get out". In all this the state has found inspiration and leadership in the School of Forestry at Oregon State College. And more recently the privately organized Keep Oregon Green movement has educated the whole population on the value of our forests and how to protect them.

My review of progress in conservation laws and practices has related almost entirely to Oregon, because that is the state with which I am most familiar. However it serves as a case history for the other states of the West for there is the ready interchange of ideas on this subject, and a great deal of "borrowing" from one another. We are making, I believe, a successful transition from the exploitation of a virgin resource to the development of a permanent forest industry without the painful interlude of general impoverishment, although there are communities which suffer from the exhaustion of their forests and find the wait for forest renewal long and trying.

I turn now to a consideration of the present and future of West Coast forestry. Others who are specialists will discuss various aspects of forestry and related matters. I should like to touch on one phase of the forestry problem: the pattern of land proprietorship.

You are all familiar with the history of the disposal of the forest lands once in the public domain, and a sordid record it was, in many respects. But look at the ownership pattern at present. Of the nearly 30 million acres of forest land, commercial and non-commercial in Oregon, the United States government owns or administers some 18.5 million acres, and the state, counties and cities approximately one million. The area of privately owned commercial forest land totals ten and a quarter million acres. Of this amount 6,300,000 acres are in tracts of 5000 acres or less divided among 45,000 ownerships. Only three million acres are in tree farms.

This wide dispersion of ownership creates a real problem for the long-range management of our timber resources. The individual owner is under the natural compulsion to protect his own interest, which is to harvest his timber crop when he can do so to the best advantage. Here the tax factor is potent, often forcing the liquidation of timber investment.

This variegated pattern of ownership complicates the access road problem. As the more readily accessible stands of timber are cut mills must reach farther back into the hinterland, into the mountains. The rugged terrain pretty much dictates the route and the high cost of construction warns against duplication. Where there are mixed ownerships agreements are necessary, and when as with the O & C reverted lands and some national forests lands there is intermingling, then agreement between private owners and a government agency is necessary. This has presented one of the toughest problems in forest administration in this state.

Obviously exclusive control of the access road gives a special advantage to the proprietor in bidding on publicly owned timber. To preserve real competition in bidding, efforts are made to obtain road agreements giving reciprocal rights of use. But working out regulations for these agreements and then the agreements themselves has not been easy. The government lacks the freedom of a private landlord; but the broad discretion its agents have in marketing timber tracts gives the government or its bureau a great leverage in such negotiations.

Government construction of access roads would clear away most of these conflicts; but appropriations for this purpose are so small in comparison with the sums needed that there still must be dependence on private roads whose cost is amortized out of the timber to be hauled over it.

We have had some experience in the West with the cooperative agreement between the government and some "chosen instrument," usually a well-established going concern with timber reserves and milling facilities. Such agreements assure the operator of preference in buying government timber in an area, at an appraised price, on condition that he manage his own lands on a sustained yield plan. The best example of this in the Northwest is at Shelton, Washington between the forest service and Simpson Logging Company. The plan seems to work successfully there; but efforts to extend the plan to other sections have met with stiff resistance from those interests which would be closed out of access to public timber under such an arrangement. Prospects for expansion of such cutting circle agreements do not seem bright at the moment for the Douglasfir belt.

We are having, however, a growing concentration of ownership in the hands of large corporations. There has been a steady reduction in the acreage held by individuals, partnerships, or closely held corporations. As time goes on we may expect further consolidation of timberland ownership in hands of corporations expecting to engage permanently in forest products industries, able to spread their operations over the growth cycle of merchantable timber, and diversifying their production to obtain the best utilization. While this transfer of ownership means that the operating profits are no longer retained locally but are widely distributed to stockholders, it offers some compensation in the promise of permanence and more intensified utilization of the raw material.

This spells the doom of many a small enterprise, but exhaustion of timber makes that certain in many cases anyway, because the cut is greatly in excess of the annual growth. However, there still will be a field for the small operator. Not only are there still a multitude of small and scattered ownerships but there is the big reservoir of publicly owned timber open to competitive bidding.

In these days we hear a great deal about multiple use of our resources. Perhaps our national forests should be renamed natural resource reserves. Besides furnishing trees for lumber and pulp, grazing for livestock, forage and cover for animal life, recreation for nature-lovers, they are also the great catchbasins for rainfall. From the national forests come waters to supply domestic needs, irrigate lands, generate power, provide a habitat for fish and a means of navigation.

But multiple use leads also to multiple conflicts, as experience well proves. To catalog: fishing interests have fought for survival with the builders of high dams which cut the migration of anadromous fish. Diversion of water for upstream irrigation may deplete the flow needed for downstream navigation. Graziers object to cutting down of their livestock numbers on the ranges though administrators may feel it is necessary to restore vegetative cover and to reduce the compaction of soil which cuts down the moisture-carrying capacity of the ground. Nature-lovers vigorously combat commercialization of scenic beauty—like running a tramway up Mount Rainier or flooding Echo Park in Dinosaur National Monument.

Multiple use immediately raises the question of *who* gets *what*. Very serious controversies arise over rival claims to priority in use of a resource, particularly the resource of water.

No set of regulations can be refined which will prevent these conflicts from arising; and no administrator is wise enough to compose all the differences. The only formula I have to sugggest is the one familiar to all of you who know The American Forestry Association: seek a solution to provide the greatest good to the greatest number in the long run.

Out of these conflicts will come the compromises and the decisions which will determine the course of our development. Our problem is to conserve for continuing and varied use the rich resources with which nature has endowed this continent. Yours is one of the foremost agencies standing guard against the ravishment of these resources and supporting their orderly and balanced utilization in a manner to give the optimum of the "good life" for Americans of today and tomorrow.

Watch Those Raindrops!

(*From page* 17)

Nature ever accomplished on her own.

There is no doubt that the best way to store water is in the ground. There it will not cause erosion, nor is it subject to rapid run-off, siltage or evaporation. Underground water is safe from the attacks of the Four Horsemen. Furthermore, subterranean reservoirs are the best regulators and distributors of stream flow to minimize the effects of floods and droughts.

And right here is the difference between Nature's and Man's way of handling water. Nature favors a maximum amount of rain and melted snow entering the ground, while man tends to keep it on the surface where the grim Four Horsemen can take a crack at it all along the line. But wherever man has realized the importance of getting water into the ground and emulated or aided Nature, he has been richly rewarded. That is why the simple, inexpensive practice of contour plowing has probably contributed more to basic soil and water conservation than have any of our enormous and costly dams.

Of course, the steeper the slope the harder it is to induce drops of water to penetrate the ground. But Nature worked on the problem for millions of years and developed a complex and delicately adjusted vegetative cover on most of our upper watersheds that functioned remarkably well. The miraculous thing about Nature's water management is that she evolved endlessly different combinations of ground cover to catch water drops. They vary with slope, type of rock, climate, altitude and topography. And it is amazing that wherever you go Nature seems to have developed the exactly correct types of vegetation for the locality. Where there are forests, there should be forests; where this is brush, it seems to be just right; where there is grass, it fits.

But man has disturbed this complicated and delicately adjusted vegetational cover on our watersheds and they have lost a great deal of their former capacity for storing ground water. As a result floods have increased, water shortages are more common, erosion and silting have been given an enormous impetus. Surely, if man is a child of Nature, he has proved to be a wayward one.

Well then, what is the answer?

I think it is right there in front of us. We need a Return-to-Nature Movement in our thinking about water — an acknowledgement that Mother knows best and always has—and endeavor to restore our watersheds, insofar as possible, to Nature's methods, which have proved to be so far superior to our own.

Are there any indications that we will do such a sane, reasonable thing in the forseeable future?

Bless you, no!

While we are spending billions on down-river water projects, the boys in the upper watersheds are playing God and trying to improve on Nature. Where she planted brush, they advocate cutting it out; where she established forest, they want to change the character, type and density. They are sold on "controlled burning," strip or block lumbering, and some cranks go so far as to suggest terracing the entire watersheds with bulldozers. The Soil Conservation Service says that trees are robbing us of water, and the Forest Service states that grass is the best soil cover, even in the steep upper watersheds. In other words, all these so-called experts have pet theories for displacing the successful watershed machinery Nature has so laboriously designed. They are hell-bent for substituting unproven, man-made experiments.

At present the Grass-is-better-than-anything-else school of thought is in the ascendency. Whatever Nature might have planted — forest, woodland, brush or shrub—as much of it as possible must be converted to grass. The fine hand of the cattlemen is evident here.

But the cattlemen are not alone. Selfish, short-sighted interests, more than any other single factor, are responsible for our piecemeal, hit-or-miss, narrow-viewed approach to land and water management. So, let's chase the ignorant, the screwballs, and the self-seekers out of our watersheds. Then let's see the subject whole and plan a program for the benefit of the American people, not just some of the American people. Until we do this we will never solve our water problems.

And watch those raindrops — they're fundamental.

Formosa

(*From page* 13)

tion would go along provided supervision was by Agriculture. We did agree that all money from logging, lumbering and from timber sales should go directly to the Provincial Department of Finance for deposition in the government treasury. We further stipulated that an annual forestry budget be presented and, when approved, be paid out of these funds. In explanation, the Forest Administration never had any operating funds. Not only did the government take over all profits but also levied a tax on the Administration of $1,700,000 annually. Since all money was derived from the sale of logs and lumber how could the Administration pay their tax if Agriculture controlled logging and lumbering? The situation was indeed complicated.

Finally to settle the matter the problem was turned over to the Peoples Council (an elected body to recommend government policy). The question now became a political football with both Agriculture and Forestry lining up their forces for a showdown. Members of the Agriculture Section of the National Government's Legislative Yuan were brought into the picture. Their opinions were divided. After three months of argument and debate a vote was taken. By a slim margin Forestry won, but the victory was short lived. The National Government stepped in prohibiting any changes in the Forest Administration. During the conflict Dr. Lee, the Director of the Forest Administration had, according to Governor Wu, become a "focal point" and had to be removed. Dr. Lee was relieved of his office. The Forest Administration had lost a good man.

Regardless of the point in question, control of logging and lumbering, reorganization of the Forest Administration was necessary for efficient operation. Such opinion was not mine alone. Col. H. B. Donaldson, Director of the Natural Resources Section of SCAP in Japan, after making a study of forestry conditions in Taiwan, at the request of Gov. Wu, in August 1951, recommended a reorganization of the Forest Administration. Mr. Tom Gill, in December 1952, after a three months study of the situation, recom-

mended immediate reorganization of the Forest Administration. Although these two recommendations were given serious consideration at the time they were made, and although in both cases, promise for immediate action was given, nothing was done.

Politics further complicated the issue. Mr. Tso-choing Pi a civil engineer, graduate of the National Forest And Water Conservancy College at Nancy, France replaced Dr. Lee as Director of the Forest Administration. Governor K. C. Wu resigned and O.K. Yui was appointed to fill that office. The new governor

WHAT IS THE STATUS of the timber supply on Formosa?

In 1947 Mr. George Nunn, Chief Forester for Western Australia, made a survey for UNRRA of Taiwan's timber resources. His report, with 14 conclusions, contains the following statements:

"The Taiwan high elevation forests are the world's best stands of remaining un-cut timber (principally Chamaecyparis)."

"Forestry is the island's largest industry other than farming."

"New growth exceeds cutting above 5000 feet elevation."

In a like manner Lt. Col. H. B. Donaldson's report to Governor Wu in 1951 contained the following statement;

"Not only is there sufficient timber ber in Taiwan to meet home needs but there exists a surplus for export."

A survey conducted at five of the government owned logging stations, in 1951, showed a standing volume of 9,120,000 cubic meters of timber. This survey did not include all of the compartments of the stations' timber tracts nor did it include the untouched Nan-Tze-Shan-Chi area at the Ali Shan station, where stands a timber tract containing 697,098 cubic meters of which 70 percent or 475,360 cubic meters are trees averaging 250 years in age.

expressed no great interest in forestry and his attitude toward the subject was indiscernible. In all fairness to him however, it must be stated that he did ask me to submit recommendations for changes to be made in the Forest Administration. "Give me," he said, "in statements of one sentence your opinions of and recommendations for forestry and the Forest Administration. No details please, just concise statements." I complied with twenty-two brief, concise and to-the-point statements. As of the present, no changes have been made, and the Forest Administration remains "status quo."

(To Be Continued)

Forestry in the FAO

(*From page* 34)

ests. Supported financially by the United States since its inception, the program, now almost 10 years old, has three American foresters on its staff. These are I. T. Haig, M. A. Huberman and Clark Holscher, all at one time associated with the Forest Service. Original Advisory Committee members from the United States were Lyle F. Watts, former Chief Forester, and Tom Gill, executive director of the Pack Forestry Foundation.

The technical assistance phase of FAO's forestry work was of particular interest as described by Mr. Glesinger, especially in view of the fact that, in his judgment, future FAO policy should follow the recommendations made by these missions somewhat more closely. A case in point was the story of Gachot, McGrath and Gallant, three of the field men on the FAO staff. Gachot, a French logging expert, is one of the best, Mr. Glesinger said. McGrath is an Australian. Gallant, a British subject, gained most of his forestry experience in the jungles of Burma. In response to a request from the Brazilian government, FAO three years ago sent these three men into the Amazon River basin—the graveyard of a number of business enterprises that started out too big, failed to study tropical conditions, and quickly went broke. The mission of Gachot, McGrath and Gallant was to study the timber situation in the basin and determine if it could be gotten out economically. They were also asked to prepare a resources map —nothing as ambitious as an inventory but something that could be used as a future guide—of this fabulous and mostly uncharted region.

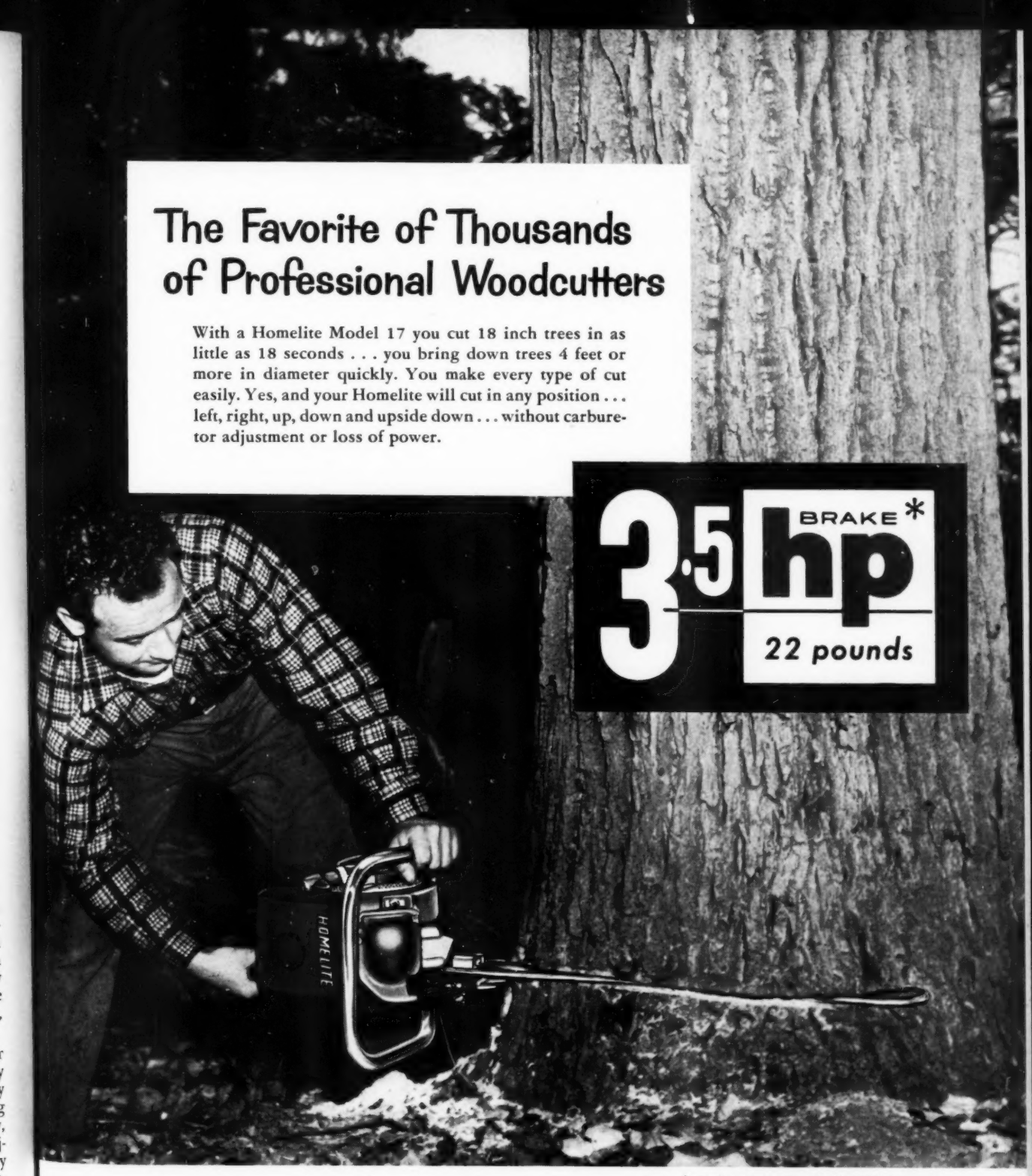
The three men found some logging going on in the basin in a small way. In most instances, the equipment being used was primitive. Production costs were exorbitant. Moreover, the FAO men learned that over a year was required to float a log down the river to the nearest mill or shipping point. All veterans of the jungle, these men did not make the mistake of trying to do too much and consequently were not driven out by malaria and other tropical disorders. Gradually, they prepared their map. They studied lumbering problems including floating problems on the river. Today, three years later, they have devised methods whereby production costs have been cut and have demonstrated how the delivery of logs can be speeded up. No, FAO was not as yet prepared to release their reports, Glesinger said. However, it is significant that the Brazilian government this year recommended that the mission be increased to ten men and offered to match FAO funds in continuing the work.

This success story against odds in an underdeveloped region can be matched by others, Mr. Glesinger said. At the request of the Indian government FAO foresters made a successful study on high mountain logging in the Himalaya Mountains. Use of particle board to give people in Burma more permanent housing as compared to the shorter-lived bamboo was first introduced by FAO foresters. Three countries — Germany, India and Chile — have now passed new laws governing forest policy inspired in large part by FAO recommendations. Technical assistance on the ground and technical assistance reports (the latter prepared under the direction of Forester Ted Haig, of the United States) indicated that FAO foresters are helping to fill an important gap, Mr. Glesinger continued. In general, these inquiries are for advice on logging methods and for more complete forest inventories—an indication that technical assistance reports from foresters on the ground will play an increasingly important part in shaping future FAO forestry programs and policy, Mr. Glesinger thinks.

Asked to elaborate, Mr. Glesinger replied that in general FAO forestry projects have always been set up by representatives of the participating countries. For instance, one will say, "We ought to have a plywood project" another "Let's start a heavy equipment program" and so on. Glesinger's view is that projects should, in general, be determined by the reports of field missions and that these missions, when an acute need exists, should be developed and expanded.

"For instance, right now we have a bark beetle epidemic in Central

(*Turn to page* 46)



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Forestry in FAO

(*From page* 44)

America," Glesinger said. "We need an entomologist. But we don't have one. In my opinion, it would be preferable to provide one and perhaps eliminate some project not quite so vital. This would have the result of providing more of a nucleus of manpower in places where the need is greatest. We would have fewer projects perhaps, but they would be more potent, accomplish more. Right now, as you might imagine, some of our lone field representatives are mere traveling salesmen—people who don't even have time to answer their mail."

Of FAO's total budget of around six million dollars, roughly $400,000 is allocated to the forestry program. Glesinger says the forestry effort needs at least two or three times that amount if the future effort he envisages — a nucleus of well-trained men in a few key spots — is to be achieved.

In presenting a two-hour report without notes on the previous day for representatives of the Departments of Agriculture and Commerce and industry, Mr. Glesinger revealed that FAO's new World Forest Inventory will have a coverage of close to 90 percent and that the Soviet Union came through with its trade figures on timber production for the first time. In this gathering of statistics, Mr. Glesinger said that the FAO was not entirely happy with the statisical coverage from the United States—that in endeavoring to provide too elaborate a picture that the figures were arriving too late. On the other hand, the reports from trade journals in the United States come through very quickly, he said.

On the basis of the world forest inventory, FAO has now learned that production in world forestry has remained stable for the last half century and that the output of the world's forests is not rising despite increasing demand. A basic challenge, Mr. Glesinger said, is to adjust the trend of forest output without destroying the forests and providing for all growing needs. Europe and North America together have 30 percent of the world's population, 40 percent of the world's forest area but produce and consume 85 percent of all forest products in the world, Mr. Glesinger said. The distribution of the other 15 per cent shows that high

standards of living are not achieved *anywhere* without proper timber development, he declared.

Mr. Glesinger also reported that FAO is now working on a World Pulp Report on the order of the Paley Report or the more recent Stanford Report of the Weyerhaeuser Timber Company. Mr. Glesinger said both of these American reports were "healthy" developments in his opinion, were forward looking and should "foment thought." The United States is indeed fortunate that either its government or an industry can sponsor reports of this nature, Mr. Glesinger said, but that in Europe's case, with 24 countries, only an international organization of some type can make such projections.

The equipment section in FAO's Research and Technology Division was described by Mr. Glesinger as "our pride and joy." More than 50 percent of this division's correspondence is in reference to equipment, he said, which tied in with a later statement to the effect that FAO should strengthen its program in terms of providing more aid on logging operations and for inventories.

In reporting on the myriad studies of all types that have been made and are being made by FAO people, Mr. Glesinger said that he favored adding a new man eventually to develop material on tropical forestry "which we know is important and which may be one of our main responsibilities in years to come."

While Mr. Glesinger reported to the general conference that he had persuaded the Soviet Union to present its timber production figures for the inventory he displayed some reluctance to answer questions on Soviet Union forestry asked by the interviewer. Asked if there was evidence of considerable Russian forestry research, as well as in other lines, Mr. Glesinger replied that on a recent mission to Czechoslovakia he had found 12 timber research specialists hard at work where there had been none a short time before.

In describing the FAO pulp meeting in Buenos Aires this month and the work it is doing to help establish more industry in underdeveloped countries, Mr. Glesinger said that one aim was to prevent, if possible, ruthless exploitation of forests in these areas. A representative of the American Paper and Pulp Association who was present at the general conference with Mr. Glesinger asked if there was any danger of new industry in these countries outstripping demand.

Mr. Glesinger said he thought not, since their calculation showed that new industries planned for Latin America would not add more than 600,000 tons of pulp, for instance, or an increase of 50 percent. This would increase the exports, not outstrip demand, he said.

If Mr. Glesinger had a mission on his brief Washington stopover, one would conclude, on the basis of his comments, that it was to stimulate greater active participation by the United States in FAO projects. The program of FAO is based entirely on good will and it can't, or won't, force advice on people, he said. The United States could provide more aid than it does along these lines, and it would be mutually beneficial to all concerned, he thinks. Mr. Glesinger also had occasion to point to the contribution of former Forest Chief Watts who he said was "directly responsible" for setting up and insisting on technical assistance in grazing problems to underdeveloped nations.

Jefferson

(*From page 23*)

maple whose thick trunk has been well filled with dark cement. Regally it stands above a little forest of other trees and shrubs, looking down on the locusts of Mulberry Road below.

Just beyond the western end of the Roundabout-walk, a strange tree catches the eye. This, the European larch, is the only "foreigner" among the surviving original Jefferson trees. Its delicate foliage contrasts sharply with the nearby catalpas and wild black cherry trees.

Dr. Betts called my attention to the tree plantings—always in clumps with open areas between. On the north side of the lawn he paused before a cluster of red cedars, the familiar *Juniperus virginiana* of piedmont and tidewater Virginia.

"While I can't say these are original Jefferson-planted trees, because I don't know how old they are, they were here when the Foundation acquired the property and you will note they have been planted in the customary clump formation," he said. "Maybe when our researches can be extended . . ." he finished the sentence with a wave of his hand. To me the cedars certainly *looked* old enough, but come to think of it all cedars look old!

As we returned to the mansion Dr. Betts pointed out re-plantings of other Jefferson imports, the golden rain or varnish tree, Lombardy poplar, and, on the east lawn, English walnut, ginkgo, juniper, and the European linden or lime. All were thriving, testifying to Jefferson's belief that they would prosper in the Virginia climate.

From Curtis Thacker, superintendent of Monticello, I learned what is being done to preserve and protect the trees whose verdure so enhances the beauty and symmetry of the mansion house grounds, providing shade in summer and a windbreak when winter storms howl around the "Little Mountain."

"Monticello does not have a professional forester, but the Foundation has contracted for the constant care of all Monticello's valuable trees through a Lynchburg firm," he explained. "Experts from this company not only have placed lightning rods on all the taller trunks, but they promptly clean out scars and decayed spots, filling them with a special asphalt or rubber cement. In February, all of our trees are fed a fertilizer

through holes drilled into the ground near the roots, and in June all dead branches are pruned. Spraying is done twice a year — using a dormant spray in winter, and the regular spray in summer."

Jefferson's writings reveal that he not only revered trees for their beauty and cooling shade, but for the quality, finish and durability of the wood they produced. Unlike most of the plantation owners and the statesmen of his day, Jefferson was handy with tools, and he would often be found in his wood-working shop fashioning furniture, or one of the famous gadgets that made life easier and more interesting in Monticello's heyday, and which never fail to delight visitors today. The parquet floor in the drawing room, of native cherry and beech wood, was designed by Jefferson, as was his revolving serving door, the folding music stand, and the desk on which he wrote the Declaration of Independence—all made of beautifully-finished wood.

Although the outer walls and the partitions of the mansion are of dark red brick, all the beams and floors are of wood, generally the stoutest oak, cut and finished on the place by skilled colonial craftsmen. During the recent renovation of the mansion some of these beams had to be removed and replaced with steel girders, but most of the floors and the splendid ceilings were not disturbed.

Throughout Jefferson's writings there are numerous references to trees and forestry. As late as 1815 he apparently tried to get the complete works of Michaux's "American Forest Trees," for there is correspondence about it with a friend in Philadelphia. In answer to a series of questions from M. de Marbois, of the French Legation in Philadelphia, Jefferson wrote his famous "Notes on the State of Virginia," which lists his favorite trees, plants and fruits under four categories: (1) Medicinal; (2) Esculent or edible; (3) Ornamental, and (4) Useful for fabrication. He added the Linnaean to the popular names, because his selections were confined to native specimens and the popular name might confuse the foreigner.

As you leave the mansion house grounds today and begin the winding descent of "Little Mountain" you will find that native woods—oaks, tulip poplar, wild cherry, ash, dogwood, walnut, etc., — have again taken over the steep slopes. Here the

C.C.C. boys made another of their fine contributions in the 1930s, clearing out dead wood and underbrush, and generally sprucing up the place. It must now look very much as it did in Jefferson's time, when it was a natural deer and small game park, and also served as a screen between the mansion and the working acres of the plantation.

About halfway back to the entrance gate you pass a small cemetery, surrounded by a high iron fence. Here Thomas Jefferson and the members of his family sleep the eternal sleep. The simple granite shaft over Jefferson's grave makes no mention of his high offices as President, Ambassador, or Governor. At his own request the wording reads:

"Here was buried Thomas Jefferson
Author of the Declaration of
Independence
Of the Statute of Virginia
For Religion Freedom
And Father of the University of
Virginia.
Born April 13, 1743.
Died July 4, 1826."

But why should this hillside site be chosen as a family burial ground? A certain tree had a part in it. Sarah Randolph, in her delightful "The Domestic Life of Thomas Jefferson," tells about it:

"Of the many friends by whom he (Jefferson) was surrounded in his college days Dabney Carr was his favorite; his friendship for him was strengthened by the ties of family connection, on his becoming his brother-in-law as the husband of his sister Martha. As boys . . . when studying together it was their habit to go with their books to the well-wooded sides of Monticello, and there pursue their studies beneath the shade of a favorite oak.

"So much attached did the two friends become to this tree, that it became the subject of a mutual promise, that the one who survived should see that the body of the other should be buried at its foot.

"When young Carr's untimely death occurred Jefferson was away from home, and on his return he found that Carr had been buried at Shadwell. Being mindful of his promise, Jefferson had the body disinterred, and removing it, placed it beneath that tree whose branches now bend over such illustrious dead—for this was the origin of the graveyard at Monticello."

Down in the city of Charlottesville, at the intersection of High

Street and Lexington Avenue, stands another living link with Jefferson's time. It is "Tarleton's Oak," a huge spreading tree under whose gnarled branches, tradition says, the British cavalryman Banastre Tarleton pitched his tent during a raid on Charlottesville, June 4, 1781.

The Virginia colonial legislature was meeting in the town, and Tarleton hoped to capture some of its members, along with Thomas Jefferson, then the Governor of Virginia. But Captain Jack Jouett, an alert colonial patriot, overheard their plans while the British were dining in an inn en route.

By taking a shorter route, Jouett arrived in Monticello and Charlottesville in ample time to warn the governor and legislators of their danger, and all escaped. Monticello and its fine trees were not burned, as were many other colonial plantations, because, it is said, Jefferson had insisted upon humane treatment of British and Hessian prisoners-of-war domiciled in the vicinity.

Salute to the Service

(*From page* 31)

chute lands in relation to the fire and then selects a safe spot for the smokejumpers to land, generally about a quarter of a mile away from the fire.

The jumpers then bail out. They use slotted chutes which enable them to maneuver to the pre-selected landing points. After the jump crew is on the ground and unharnessed, the pilot makes another run over the fire at 500 feet and drops fire-fighting equipment by parachute. The jump crew—they number anywhere from two to 75—then moves on the fire while the spotter plane hovers overhead. After the fire is out, the crew caches its equipment to be picked up later by pack horses, and hikes out to the nearest point where it can be picked up by truck or helicopter. Smokejumpers claim the long hike back is the most difficult part of their jobs.

Prolonging Timber Life

(*From page* 29)

treated poles serve as the foundation and sidewall framework. Construction costs are often reduced to less than one-half those of conventional structures. On farms, pole frame construction has been used for cattle barns, hay storage sheds, corn cribs, equipment shelters and poultry houses. Elsewhere, pole frame design has been used for car ports, warehouses, golf course shelters, machinery storage shelters and occasionally houses.

The number of dealers handling treated timber is increasing rapidly in response to growing demand and the wider uses to which pressure treated wood is being adapted. Dealers are located in more than 1400 cities and towns.

Recent technical developments have greatly expanded the possible applications for pressure treated wood. Continuing research is developing new chemicals which are suitable for general purpose application or for specialized uses. Among the preservatives are the fire retardant chemicals which substantially increase the resistance of wood to fire. The fire retardants also give protection against insects and decay. The standards of the American Wood Preservers' Association now include 13 general purpose wood preservatives and three fire retardant preservatives.

Cooperative research between the wood preserving industry, colleges and government laboratories has developed new procedures for the preservation of laminated wood. The techniques developed are now being used in the U. S. Navy's wood ship building program. However, the use of pressure treated plywood and laminated timber promises to have extensive application wherever material of outstanding strength and durability is required.

The service expected of preserved wood depends upon the quality of the preservative, the method of treatment and the severity of conditions to which the wood will be exposed. The treated wood must contain an adequate amount of preservative per cubic foot of wood, and the penetration must be sufficiently deep to insure protection. For general use pressure methods of impregnation are the most satisfactory and economical in the long run.

The standards of the American Wood Preservers' Association approve three types of preservatives, each with particular advantages for specific uses. These are the preservative oils which include creosote and mixtures of creosote with either coal tar or petroleum, the waterborne salts, and the oilborne preservatives, meaning those mixed with petroleum carriers.

The AWPA also sets the minimum requirements for penetration of the preservatives in the wood and the amounts which must be retained. The specifications are the standard for nearly all preserved wood used in engineered construction. These standards are followed carefully by members of the Service Bureau of the AWPA. Formed more than 30 years ago, the Service Bureau's membership consists of a large majority of the pressure treating firms in the United States and Canada, in addition to the major suppliers of chemicals used in the treating process. These members guarantee the dependability of their products and cooperate freely in the constant effort to improve methods and expand uses for pressure treated material.

The Service Bureau has its headquarters in Chicago but also has field offices in several other cities. It employs a staff of specially trained engineers, who are available without charge for consultation with architects, engineers, builders and public

officials on problems involving use of wood in construction.

Today the United States population is growing at the rate of 7200 persons each day. The rising population will greatly increase the demand for all types of natural resources. Among building materials, only wood is a renewable resource. Consequently, it can be expected that wood will continue its essential role in building construction.

The attainment of a modest lumber preservation program, such as the treatment of two billion board feet annually, would go far toward extending future timber supplies. Available data indicate that pressure treatment will increase the service life of a building three to five times under the most severe conditions for decay and insect attack. Estimating the service life of properly treated wood to be four times that of similar wood untreated, two billion board feet of lumber pressure treated to resist decay and insects is equivalent in utility to eight billion feet untreated.

Experience shows that savings can be realized from pressure treating lumber which is exposed to danger of early deterioration. An upward trend in the use of preserved wood in farm construction, as we have noted, is already a reality. Hence it is expected that the volume of timber treated in future years will be sharply upward.

Present levels of forest renewal, with improved utilization to procure longer life in service, will assure adequate lumber supplies for the future.

The wood preserving industry now has the plant capacity to treat all the wood which, because of the nature of its use, needs to be protected from decay, insects or fire.

Hump on a Log

(*From page* 16)

burl the size of one discovered in the Big Lagoon redwood holdings of the Hammond Lumber Company, about 30 miles north of Eureka, Calif., in 1944. will ever be seen again.

At first glance it appeared to be a huge mass of rocks, from which seven large redwood trees were growing, but closer inspection revealed it to be a redwood burl, 35-feet in diameter, 107 feet in circumference and nine feet high. It extended 18-inches into the ground.

This phenomenon occurred in an area made desolate by fire, which had charred the burl and surrounding trees. The immensity of the burl prevented fire from damaging its interior wood to any appreciable extent. The burl was purchased by L. W. Robnett & Son, pioneer producer and shipper of burls and logs, of Eureka.

Four men, two drag saws and a tractor were employed for a period of 30 days to cut, trim and remove the burl, which was cut into 11 pieces averaging better than five tons each. Dragsaw blades with two-foot variations were used, and a special saw blade 24-feet long was fabricated so that the center of the burl could be reached. This blade was pulled by a Hansen drag saw, two of which were required in the final stages of cutting the massive burl into veneer stock. A total of 122,000 pounds of burl was removed. Several of the larger trees growing from it were in excess of 2000 years of age. Literally, chips off the old block!

Playground of the Goose

(*From page 33*)

as the prelude to another feeding.

He threw the shelled corn on shore and into the water; the geese moved closer to pick the food up. I remained behind him so I would not scare the geese.

After watching the amazing performance of the geese for a while, I then decided to try for photos. Armed with several cameras, I first sat on a bench at the edge of the pond; I had a long focus Graflex and several other cameras with me.

When the geese saw the large Graflex, they at first moved out from shore to a distance of about 50 feet. Quietly waiting for them to look me over, I watched them for some minutes. After a while I began to throw some corn in their direction. Watching to see what I would do, they finally began to pick up some of the food.

As they began to eat, I threw in more corn, nearer shore this time, hoping to attract the birds for some closer range pictures. I was not disappointed, for before long I was able to secure various photos of the feeding groups. When it became time for me to return to Wadesboro where I was stopping, Mr. Gaddy drove me there. My experience the first day prompted me to return for the next several days for more photos. I added dozens of films to those I had taken the first day.

Several times a day Mr. Gaddy scattered corn to his geese guests, each time his appearance with the familiar basket of corn on his arm was a sign for the birds to congregate where he was dispensing food. Each time I remained where I could film the birds whenever they grouped around their host. They soon accepted me as I always came with their protector.

That initial visit was the first of many more in the following years.

At each later visit I noted that there was a larger concentration, and that the geese were tamer as well; also, that there were more people present to see the unusual refuge and its geese.

Where at my first visit I had seen a few of the neighbors present, I now saw that the fame of this refuge had spread, and that it became larger at each visit; people were coming from more distant regions.

Teachers came with their classes; Boy and Girl Scouts came with their leaders; college and high school science groups appeared with their instructors; orphanages came by the bus load; bird study groups appeared, for here was the only place in which it was possible to see so many wild geese.

Cars seemed to come from every section of the U. S. to see the wonderful geese at Gaddy's. A register was kept at the refuge for visitors to inscribe their names, addresses and the date. Before long I noted that occasionally a foreign visitor was registered.

Bird study groups from a distance often came to spend the day watching the birds and all their activities. Nowhere else was it possible to see so many wild geese at close range and be able to see what they did. There it was possible to learn more about the actions of geese in a day, than it was possible to learn in a lifetime spent in the wilds.

While the geese appeared to be tamer at every visit, there was always a sentinel somewhere in the concentration to advise of anything unusual; any danger which might threaten.

Once an auto backfired on a distant highway. It sounded quite like gunfire. Instantly there was complete quiet on the pond. Not a sound was heard from the multitude until they were satisfied there was no danger. Then they resumed the conversational "gabbling," which was taken up by all the birds.

Another time there was an excited calling by several of the geese. At first I could see nothing, but the alert sentinel had noted that a

strange dog had appeared at the north side of the pond. The geese began to move away from shore, swimming out on the pond as the dog ambled along at the far end of the water. When the dog disappeared in the distant woods, the geese began a "conversation" which sounded as if they were discussing their victory over the unwelcome intruder.

It was remarkable to see how the various visitors reacted to the geese and their behavior. A few people when they came to the refuge for the first time, looked around briefly, but soon were on the way to the next place. Others remained a while, marveling at the unusual sight of so many geese. Still others could not stay long enough to see all they were interested in seeing.

For some years the Fish and Wildlife Service maintained a banding station at the refuge, where periodical banding was done. One time when banding had taken place, some geese were so frightened that they took off to a distance, instead of returning to the refuge. They were banded on Jan. 12; four days later the ones which had taken flight were shot in southern Illinois, at least 500 miles distant. This was curious because geese ordinarily fly north in migration. Since they were not expected to leave the refuge till several months later, this was one of the "unusual" things birds sometimes do.

On moonlit nights, the geese fly off to forage in distant areas, returning before daylight. When there is no moon, the birds wait till after daylight before leaving, returning in mid-morning. They straggle in by groups, up to several hundred, or even more.

It is interesting to watch these returning birds, for they indulge in sideslips, or other antics as they approach the pond, often circling over the pond before setting their wings for the descent.

The geese usually arrive in full moon time in October, staying at Gaddy's till full moon time in March or April.

Unfortunately, Mr. Gaddy did not live to see the fortunes of his geese, as he passed away at the pond while feeding his geese. He had asked to be buried near the pond. The refuge is a memorial to the devotion of Mr. Gaddy to his birds.

Mrs. Gaddy has seen fit to carry on with the work which her late husband had done so well during his life and she has a number of loyal helpers.

Reading About Conservation

By ARTHUR B. MEYER

IN *Our Wildlife Legacy* (Funk & Wagnalls Co., 422 pp., $5) Durward L. Allen reminds us once again that resource conservation is not just made up of isolated compartments, but is rather a composite of many sciences and arts and that no phase of conservation can stand alone, independent of other phases. Wildlife work has evolved rapidly in recent years. Once its major interests were game farms, hatcheries and bag limits. Now it says, "The way to have wildlife in abundance is to provide its life necessities on the land and in the water." In the search for the "hows" in this task the wildlife manager becomes a student of nature in the widest sense of the term and what he learns takes on a deeper significance than it is possible to assign to the wildlife itself.

In his legacy volume, Mr. Allen writes engagingly, with humor, and obvious high regard for his reader. He combines a sharp knife of scientific thinking with tact and an absence of name-calling as he debunks falacies of both the past and present. The confidence with which the reader accepts Mr. Allen's statements or conclusions will be strengthened by the author's scholarly practice of indicating how little we actually know. He says, ". . . the field of wildlife management and land-use ecology is so new and so big that an author must be a bit foolhardy who wades in to concentrate and simplify. A better job can be done some years hence."

The book is divided into three parts. These deal with the history of the wildlife resource, fundamentals of management practices that have been learned and falacies uncovered, and with matters social and political. The author gives generous credit to other workers in the field and documents his presentation by extensive reference notes and bibliography (both in back of book). The subject matter of the first two sections speak for themselves. The latter section might be summarized as follows:

"As we have seen, our own planning is largely political; and the dimension that deals in quantities of resources and numbers of people is waiting for recognition. It's a biological dimension, and an understanding of it is best grounded in the study of lesser creatures. Man is given the intelligence, though perhaps not the humility, to learn therefrom."

The Role of Trees

The Triumph of the Tree by John Stewart Collis is an extraordinary book. (William Sloane Assoc., 1954, $3.50, 276 pp.) It was first published in England in 1950. Primarily it is about trees, their place in nature and in relation to mankind. But it deals with much more than trees—with mythology, folklore, superstition, history, religion, and economics. The author starts in the dim time when there were no trees and then traces the rise of man, from an animal that developed hands because of arboreal living. The influence of trees on man's physical environment and mental development, and later the effect of man's activities on the trees, constitute the book's theme. The author writes well. A somewhat indefinable touch of mysticism will hold all readers who have a feeling of awe in contemplating the workings of nature and the minds of men.

There is considerable documentation, by citing written sources, of items from ancient history or stories from mythology and the reader is impressed by the fact that much research went into the preparation of this book. Unfortunately, Mr. Collis' diligent research does not appear to carry over in reference to his comments on the United States. In fact, some of Charles Dickens' less tolerant remarks on American ways appear to be Mr. Collis' guideposts in acquainting his readers with America's forest situation. One gathers that all the sins of man in regard to

resources since the dawn of time have accumulated to the discredit of the United States in particular. Clearly, we are not without fault, even considerable fault, in our past treatment of resources and some of our present practices. The point is that recent decades have seen a new will to rectify previous mistakes in America. This new attitude has now produced some measurable results that apparently have eluded the author.

Nevertheless, the book is interesting and makes good reading.

Briefly Noted

Fire Fighter by Mark Boesch (William Morrow & Co., 187 pp., $2.75) is a good clean story about a young high school graduate who left his Ohio home for a summer in the West. Low on funds, he secures a temporary job on a Montana national forest as a fire fighter. Although a youngster compared with most of the workers, he makes good on the job and is offered employment for the rest of the summer on the forest. He falls in love with the forestry work and the outdoor life. Following a winter as a trapper and a second summer on the ranger district as a fire lookout and smoke chaser, the story ends with his preparation to enter forestry school. Importantly, he has had the experience of finding himself and his capabilities. The author is a forest ranger himself and has offered a balanced and realistic picture for young readers on certain aspects of forestry work without leaving out the almost romantic attraction which the outdoor life holds for a youth that is suited for it.

Pork, Molasses and Timber by Louis W. Eaton (Exposition Press, 75 pp., $2.50) is an unpretentious little book that is not striving for literary distinction or breadth of subject matter. It contains some of the recollections and reflections of a man who knew the Maine woods in the early logging days. The author is a lumberman who loved the forest, the life of the logging camps, and the loggers and people of the Maine woods. It is pleasant reading and has historical value.

Taylor's Encyclopedia of Gardening edited by Norman Taylor (The American Garden Guild, Inc. and Houghton Mifflin Co., 1225 pp., $5., 1948) is a revised and enlarged edition of *The Garden Dictionary*, first published in 1936. Its contents range from scientific plant names and garden vocabulary to short articles on how to design a penthouse garden and how to plant potatoes. Sixty-eight specialists contributed to the book. It was pronounced "The most notable horticultural book which has appeared in America in recent years" by the Massachusetts Horticultural Society and was awarded that organization's gold medal.

50th Anniversary

An estimated 400 forestry alumni, their families and friends from all parts of the nation gathered at Iowa State College, Ames, October 15 and 16 to help the Department of Forestry celebrate its 50th Anniversary.

The observance provided the backdrop for presentation of an honorary Doctor of Agriculture degree and a Bachelor of Science degree.

Thomas B. Truax, Chief, Division of Wood Preservation, United States Forest Products Laboratory, Madison, Wis., was awarded the Doctor of Agriculture degree for his world leadership in research in wood technology.

Fritz J. Poch, who attended Iowa State College intermittently from 1916 to 1922, received the Bachelor of Science degree. He retired last July 1 as Forest Supervisor of the San Isabel National Forest in Colorado.

The Stanford Report

(*From page* 25)

only the wisest use—for the good of all—of such information, I doubt it would have pursued any such course.

Weyerhaeuser, of course, has already made some broad conclusions of its own from the study. Most of these seem to be confirmation of convictions which this company has had for many years now. For example, it sees much bigger markets ahead for forest products — tempered by increasingly keen competition from other products.

It sees forest industries alerted to the possibilities of improved forestry and ever more careful logging operations, as well as new technical developments in true "harvesting" of a "forest crop."

But the biggest and best news for most of us is Weyerhaeuser's conclusion — matched by the Stanford researchers— *While more and more products are to be made from the forests, these products will be made with relatively less drain on the forests. Thus available timber supplies will stretch much further than would have seemed possible in the past.*

Some of you who were on the recent "Conservation Caravan" heard Mr. P. W. Weyerhaeuser, Jr., president of the company, speak at the annual AFA convention in Portland, Oregon. Those present may recall that he ventured the opinion that we might be much nearer such a goal than many had dared hope. Quite probably he had the Stanford study in mind.

However, Mr. Weyerhaeuser's understatement at Portland is an indication of the company's hope that the data of the Stanford study will speak for itself, and that others will accept or modify the Stanford conclusions — not Weyerhaeuser's — according to their various judgments.

And what do the Stanford research men believe, after more than a year of exhaustive study and tabulation?

Broadly, they see a pulp and paper production and demand that by 1975 would be nearly twice the present size. On the other hand, they see a gradually diminishing demand for sawlogs, and predict that by 1975 the use of trees for fuel wood will be almost nil.

They see great increases in construction . . . in the use of fibreboard shipping containers . . . and general manufacturing and business. These represent the three major markets for forest products.

And they feel that prices generally for pulp and paper products and their by-products will remain stable in comparison with competing products. However, lumber prices will probably continue to rise, the report indicates. The same is true, but in lesser degree, in the case of plywood.

Most of us realize by now that these two factors—demand and price —are of tremendous importance to conservation, to a sustained forestry program, to the perpetual growth and harvest of trees.

So the prediction of healthy demand for the product is as much good news as is the indication that —due to technological advances and better methods—the drain on our forests will be relatively less.

Trees and their growth and use play such a vital and integrated role now in America that a study like this tells some interesting things about what life will be like before the next two decades are over.

For instance, there'll be around 212 million of us in the United States by 1975. But fewer of us in the school-age brackets will have to have jobs, and there'll be fewer over age 65 still slaving away.

Also—this will make some of us glad, and others of us worried—the number of government employees is expected to decline, from about 10 percent of the labor force, as of 1952, to about seven percent by 1975.

We're going to live even longer, and the flow of immigrants from foreign shores will continue about as of now—that is, around 280,000 annually.

There'll be more income, even

higher living standards, and some interesting changes in the home. Contrary to the seers of a few years ago, the multi-family dwelling isn't going to push out the single family unit to any marked extent. And your house of 1975 is likely to be stabilized at around a thousand square feet, be built in one story, and show some interesting changes in the way of use of textiles and new materials. And you are going to demand and use more and more products made from wood fibers—which of course means that the so-called "non-paper" uses of wood pulp are going to increase tremendously.

In fact, barring what the Stanford researchers call "radical" technological developments, the forest products world of 1975 won't be too much different from what it is now —except that the present enlightened philosophies will have been perfected and in a more complete operation.

This is much more comforting than would be a wild prediction of a "never-never land." It indicates that we have learned by the past, and are on the beam at present. It indicates that conservationists and producers of forest products are now on common ground, with the forester as liaison in their common goal.

The one dark spot in the Stanford study is unavoidable. Such a survey has to assume that its projections will not be disturbed by wars, and statistics have no control over that situation.

But there's a big bright spot which may offset that one. The Stanford experts feel that during the next quarter century the "cycles of business" should be far less marked than in the past.

In other words, there seems to be evidence that the American economy is really approaching comparitive stabilization, despite past trials and tribulations — or perhaps because of them—and despite the terrific pressures of world events.

One of the big reasons for that, certainly, has been the intelligent progress in the growth and economic use of our forests. This is, indeed, the underlying, basic lesson —unstated though it is—in the Stanford study called "America's Demand for Wood."

What Report Projects

(*From page 25*)

costs (especially in the South) and an increased output from small, relatively high-cost mills as mill locations are adapted to scattered timber supplies. 4) Distribution costs, which represent about two-thirds of the cost of lumber to the consumer, will increase. Transportation represents a large part of this cost. The fact that more than 60 percent of domestic softwood purchased by eastern markets is transported from the West will tend to increase average lumber prices in coming years.

Is this a realistic picture? Not entirely, some lumbermen think. They point to the fact that the industry is now spending from $3,500,000 to $4,000,000 annually for research—an effort, in other words, to upend that initial assumption as regards technological development. Also, the prediction that lumber will have lost 56 percent of its maximum markets to competing materials by 1975 is offset, in part, by the fact that around 15 percent of this loss will have gone to other wood products such as hardboard, plywood and insulating board — all products which are achievable by integrated firms.

Some eastern lumbermen also point to the fact that the Report indicates that two-thirds of our sawtimber will continue to come from the West in the next few years. But as the Report points out, if the projection were continued to the year 2000 it might well show that the area east of the Rockies, which contains three-fourths of the forest land as well as four-fifths of the population, might tend to temper the importance of the

West. It may well be, the Report says, that the last quarter of the century will see major production shifts *depending* on timber restocking, forest management, and the allocation of wood resources (as between lumber and pulp) followed in the South.

"Considerable progress has been made already in placing the nation's timber on a sustained yield basis," the Report says. "In the South, however, there is no apparent evidence that lumber firms (as distinguished from pulp and paper production) have generally made provision for future large-scale sawtimber supplies.

On an overall basis, the Report forecasts moderate increases in the consumption of lumber from 41.3 billion board feet in 1953 to 44.6 billion board feet in 1975. There will be a ready market for all lumber produced, despite higher prices, plus a moderately higher level of imports.

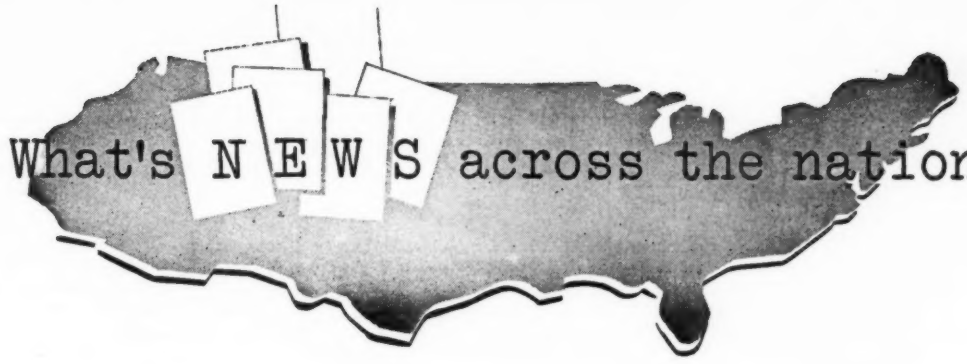
The chief danger, the Report indicates, is that the continuing increase in lumber prices is putting wood in a poor competitive position. True, the industry today is putting on a major campaign to regain lost markets and open up new ones but the Report underlines that an overall decline of about 45 percent in the board feet of lumber consumed per dollar of nonresidential construction is expected in the period between 1953 and 1975. At the same time, lumber's share of the railroad car construction market is shrinking and the use of wood as a fuel will probably completely fade out in future years.

The Report also shows that lumber used in the average dwelling unit, which shrank 44 percent in the period from 1920 to 1953, will probably drop another 17 percent between now and 1975, winding up at approximately 8700 board feet per unit as compared to 18,900 board feet in 1920. The trend to slab-type construction has cut into lumber's market for foundations, floor framing, sub-flooring and finished flooring in recent years. At the present time, 80 percent of the large-scale builders use slab flooring which indicates that about 60 percent of all builders may be using this material by 1975. At the same time, sheet materials have cut into lumber's markets in roofing and the trend to one-story units has resulted in a 36 percent decline in use of lumber for exterior walls.

However, the "do - it - yourself" trend now popular in repair work and minor building will probably continue with the demand for this type of lumber increasing to 7.2 billion board feet by 1975 as compared to 6.8 billion last year.

In considering these problems regionally, the Report predicts that increases in the use of mill residuals to produce pulp and other fiber products will be substantial in the West and South, less pronounced in the East. This increased use of mill residuals will meet about one-third of the domestic pulpwood requirements, the Report predicts. Improved pulping methods will result in greater use of hardwoods, especially

(*Turn to page* 63)



ELECTION OF LOWELL BESLEY, EXECUTIVE DIRECTOR-FORESTER OF THE AFA, AS CHAIRMAN of the Natural Resources Council of America, and that organization's all-day conference with Department of Agriculture and Forest Service officials headlined conservation developments across the nation last month. Mr. Besley succeeds Samuel H. Ordway, vice president of the Conservation Foundation, in heading the Council formed in 1948 that includes the executive heads of 36 national conservation groups whose combined spheres of influence represent several million Americans. Not an action agency itself, the Council provides its member groups with a prompt exchange of information as a basis of independent action.

AN INFORMAL MEETING AT WHICH NO OFFICIAL RECORD WAS KEPT, THE MEETING'S PURPOSE was to give the key groups in the Council an opportunity to express their views on resources problems and department policies. J. Earl Coke, assistant Secretary of Agriculture, attended part of the session. Present for the whole day were Chief R. E. McArdle and the top administrative heads of the Forest Service. A representative of Agriculture's legal department who was called in to answer questions from the group as regards the complex mining claims situation on national forests, also attended part of the time.

CONSENSUS OF THOSE PRESENT SEEMED TO BE THAT "SOMETHING SHOULD BE DONE AND DONE SOON" about amending present mining laws to check filing of fraudulent claims on national forests. Valuable timber is being tied up and lost to the public as a result of these claims. In response to inquiries from the group, the Forest Service reported 84,000 mining claims now filed on the forests of which number only two percent are being operated commercially. Some eight billion feet of timber worth roughly 500 million dollars, or enough to build almost one million five-room houses, are tied up as a result of these claims, the Service said. In some areas of the Southwest, high school youngsters are renting Geiger counters and rushing onto the forests to plaster hillsides with mining claims, it was reported. Many members of the Council seemed to feel that a tough bill with "teeth in it" represented the proper approach in correcting this situation. One member said the problem would have to be whipped if "it takes the next 10 years of our lives." The matter was referred to the Council's executive committee for study and a report at the next meeting of the Council on December 5.

IN RESPONSE TO A QUESTION AS REGARDS THE EFFECT ON WILDLIFE OF INSECTICIDES, as used in the control of forest epidemics, Forest Service spokesmen said that use of these poisons, all planned and carefully checked in collaboration with the Fish and Wildlife Service, has been generally good. Little damage has been sustained by wildlife or at most, only damage of a temporary nature, the Service reports. Results achieved in destroying the pine butterfly epidemics in Ponderosa pine stands, the spruce budworm in Oregon and the tussock moth in northern Idaho, all show that spraying has achieved good results as applied to the defoliators. An increase in the present Fish and Wildlife appropriation of $9,000 to carry on this type of biological research was proposed by one member of the Council.

MEMBERS OF THE COUNCIL, SOME OF WHOM WERE ANNOYED BY REPORTS THAT THEY were considered "not competent" in some quarters to study and analyze the forthcoming Timber Resources Review of the Forest Service, asked for and were given assurance that they would be given an opportunity to see this report when it is released. At

(Turn to next page)

the request of the group, the Forest Service outlined the procedure that has been followed in preparing the report and the function of the Service's National Advisory Council. A large amount of collaboration has been achieved in the gathering of material for the analysis, the Service revealed. Between 65 and 70 percent of the work of gathering statistical material has been done by personnel outside the Forest Service.

CONSIDERABLE TIME WAS SPENT BY THE GROUP IN ASKING QUESTIONS ON THE Small Watershed Act and representatives said they sincerely hoped that this program would emphasize land treatment rather than structures as it develops. A department spokesman said that he also was hopeful that this would prove to be the case and was inclined to think it would be. As of this date, the functions of the various participating agencies in the program have not been completely clarified, it was reported. The department's legal section and other experts are now engaged in studying the whole program.

THE IMPORTANCE OF PROTECTING PRESENT WILD, WILDERNESS AND PRIMITIVE AREAS ON the national forests and the possibility of creating new ones was brought up by some members of the Council. The fact that jeeps were invading some of these areas in the West and Amphibious Ducks in the Quetico. Superior area was underlined. One member raised the question as to whether it would be advisable to amend the law that made watersheds and timber the prime responsibility on national forests to include recreation. Forest Service spokesmen said that they believed in wilderness areas and the wilderness concept despite the fact that relatively few people use these areas. However, some of these areas at present are little more than marks on a map, the Forest Service said, in pointing out that it had "to get its house in order" and firm these areas up before it can decide if more are needed. The Forest Service said it did want to make one point abundantly clear, namely that it had no intention of turning over a major portion of the forests to purely recreational pursuits—a statement that was interpreted as being an effort to spike erroneous reports on this subject that were in circulation last year.

IN THE COURSE OF THE DISCUSSION ON NATIONAL FORESTS RECREATION, several Council members, in suggesting that some of these uses might be "bolted down" or otherwise classified, were warned by yet another Council member against demanding too much in this respect. Recreation, he stressed, represents just ONE of many uses on the forests. To demand too much in this respect would tend to boomerang adversely against their own best interests since large bodies of Americans have little or no concept as regards wilderness values, and, in many instances, are actually antagonistic to them. Forest Service personnel admitted that wilderness areas and their management present a number of problems, not the least of which is the control of bark beetle epidemics, for example, where it is next to impossible to control the infestations without modifying the areas. And where such infestations aren't controlled they represent a hazard to adjacent timberlands, they added.

A DISCUSSION OF THE HOPE-AIKEN GRAZING BILLS FOUND MOST OF THE INQUIRY FOCUSED ON the question of legal reviews and reimbursements for improvements. All the arguments presented for and against these measures were presented by both spokesmen for the various organizations represented and the Department. Nothing new was added that hasn't been reported previously but of interest was the fact that the approach to the problem was somewhat more temperate than has characterized some previous clashes on the topic.

IN RESPONSE TO AN INQUIRY FROM CHAIRMAN BESLEY AS TO WHAT THE COUNCIL might do to help the Department, Assistant Secretary Coke replied that "We are anxious to obtain all points of view in trying to understand the ramifications of these questions in terms of all the people involved. As a department, we probably have too much power. The Secretary is concerned about this—wishes it were less—that more of it was in the hands of the people. If you could help us break it loose, we would appreciate it. We need assistance and support. We obtain ideas and opinions from meeting with groups such as this. We encounter a diversity of viewpoints. So we have to arbitrate. There has to be give and take. And I can assure you that Secretary Benson has only one interest and that is the best thing he can do for the people of the country."

What Report Projects

(*From page* 60)

in the South and East. The South will see major increases in timber use for pulp and hardwood production, the West in softwood lumber and plywood — with mill residuals providing material for increased pulp and hardboard production, and the East will show only moderate increases in lumber and pulp uses of timber and a decline in total use, the Report states.

The Stanford Report does not inquire into the question of overall supply of timber. Of interest, however, is the fact that as far as consumption of end products is concerned, its overall forecasts are similar to those of the U. S. Forest Service.

How does the Stanford Report compare with the President's Materials Policy Commission (Paley) Report of 1952? In reporting that the overall sawtimber need was "critical," the Paley group estimated a 10 percent increase in its need between 1950 and 1975 as compared to a 3.4 percent increase by the Stanford group. Here, the Stanford group is counting on a much smaller demand for sawtimber by 1975 than does the Paley group. Partly, this is because the Paley report figured that price relationships would stay about the same as in 1950 while the Stanford group includes the factor of prices rising. Also, this is because Stanford figures on a steep decline in the amount of lumber used per house, plus more intensive utilization.

The Weyerhaeuser Timber Company, which will use the report as a framework for its own long range planning, has released the study to other industries along with four conclusions of its own. These are: 1) that bigger markets lie ahead as the result of expected growth and activity of the economy; 2) no part of the various forest products industries has been immune from the inroads of competing materials and competition from other products will continue to grow; 3) the forest industries are alert and will be increasingly alert to the possibilities of improved forestry and logging practices and new technological developments for harvesting the whole forest crop; 4) as competition and technical developments proceed, more and more products will be made with relatively less drain on the forests.

Feature Photo of the Month

Photos used on this page will be of unusual rather than esthetic qualities and subject matter will be restricted to scenes, events, objects or persons related to the use, enjoyment or unique aspects of our renewable natural resources. For each picture selected AMERICAN FORESTS *will pay $10.*

This elm, located in Fryeburg, Maine, is appropriately known as the "doughnut tree." The main trunk is four feet, nine inches in diameter and the limb forming the "doughnut" is 18 inches

Photo submitted by Margaret A. King, Tamworth, New Hampshire

IDEAL CHRISTMAS GIFTS— SELECTED BOOKS ON FORESTRY AND RELATED FIELDS OF CONSERVATION.

THE AMERICAN FORESTRY ASSOCIATION

Knowing Your Trees—Collingwood & Brush	$ 5.00
Teaching Conservation—Beard	1.50
Managing Small Woodlands—Koroleff & Fitzwater	1.00
Trees Every Boy and Girl Should Know	.50
Proceedings, Fourth American Forest Congress	3.00

TREES

Arboretums and Botanical Gardens of North America —Wyman	$ 1.50
Cultivated Conifers of North America—Bailey	12.00
Field Book of American Trees and Shrubs—Mathews	3.95
Forest Trees of the Pacific Coast—Eliot	5.50
Handbook of the Trees of the Northern States and Canada—Hough	6.75
Home Book of Trees and Shrubs—Levison	10.00
Illustrated Guide to Trees and Shrubs—Graves	4.00
Manual of the Trees of North America—Sargent	7.50
Meet the Natives—Pesman	2.50
Natural History of Trees of Eastern and Central North America—Peattie	5.00
Natural History of Western Trees—Peattie	6.00
Standard Cyclopedia of Horticulture—Bailey, 3 Vols.	52.00
Textbook of Dendrology—Harlow & Harrar	6.50
Trees for American Gardens—Wyman	7.50
Trees of Pennsylvania—Grimm	5.00
Trees of the Western Pacific Region—Kraemer	5.50
Your Forests—Bruere	2.75

GENERAL FORESTRY

Forest Policy—Greeley	$ 5.50
Forests and Men—Greeley	3.00
Indian Forest and Range—Kinney	4.50
Introduction to American Forestry—Allen	6.00

FOREST MANAGEMENT

Aerial Photographs in Forestry—Spurr	$ 6.50
American Forest Management—Davis	7.50
Applied Silviculture in the United States—Westveld	6.00
Farm Wood Crops—Preston	5.00
Forest Inventory—Spurr	8.50
Forest Management—Chapman	6.00
Forest Management—Meyer, Recknagel & Stevenson	6.00
Forest Mensuration—Bruce & Schumacher	7.00
Forest Pathology—Boyce	8.00
Forest Valuation—Chapman and Meyer	7.50
Forestry and Its Career Opportunities—Shirley	6.50
Forestry in Farm Management—Westveld & Peck	5.00
Insect Enemies of Eastern Forests—Craighead	2.50
Management of Farm Woodlands—Guise	5.50
Principles of Forest Entomology—Graham	6.00
Principles of Nursery Management—Duruz	3.50
Tree Crops—A Permanent Agriculture—Smith	6.00

LANDSCAPING AND CARE—GARDENS, TREES, FLOWERS

American Wild Flowers—Moldenke	$ 6.95
Field Book of American Wild Flowers—Mathews	3.95
Field Book of Western Wild Flowers—Armstrong	5.00
Gardening the Small Place—Clark	3.00
How to Landscape Your Grounds—Johnson	3.50
Maintenance of Shade and Ornamental Trees—Pirone	8.00
Plant Buyers Guide—Steffek	7.50
Propagation of Plants—Kains & McQuesten	4.50
Shrubs and Vines for American Gardens—Wyman	7.50
Tree Experts Manual—Fenska	5.00
Wild Flower Guide—Wherry	3.50
Wild Flowers and How to Grow Them—Steffek	3.95

WOOD—ITS MANUFACTURE AND USE

Air Seasoning and Kiln Drying of Wood—Henderson	$ 6.50
Coming Age of Wood—Glesinger	3.50
Concise Encyclopedia of World Timbers—Titmuss	4.75
Forest Products—Brown	6.00
Harvesting Timber Crops—Wackerman	6.00
Logging—Brown	6.00
Lumber—Brown	5.00
Mechanical Properties of Wood—Wangaard	7.50
Textbook of Wood Technology—Brown, Panshin & Forsaith, Vol. II	10.00

BIRDS, WILDLIFE, HUNTING AND FISHING

Audubon's Birds of America—Vogt	$ 8.95
Audubon Water Bird Guide—Pough	3.50
Birds Are Yours—Lemmon & Eckelberry	2.25
Field Book of Eastern Birds—Hausman	4.50
Field Guide to the Birds—Peterson	3.75
Field Guide to Western Birds—Peterson	3.75
Fish Ponds for the Farm—Edminster	3.50
Fisherman's Encyclopedia—Gabrielson & Lamonte	12.50
Fishery Science—Rounsefell & Everhart	7.50
Game Management—Leopold	7.50
Hunters Encyclopedia—Camp	17.50
Introduction to Birds—Kieran	2.95
Land and Wildlife—Graham	4.50
Mammals of North America—Cahalane	8.00
Our Desert Neighbors—Jaeger	5.00
Raising Game Birds in Captivity—Greenburg	7.50
Round River—Leopold	3.00
Saga of the Waterfowl—Bovey	5.00
Spinning for Fresh and Salt Water Fish in North America—McClane	4.95
Trout and Salmon Fisherman for Seventy-Five Years —Hewitt	5.00
Wildlife Management—Gabrielson	4.50

CAMPING

Alaskan Adventure—Williams	$ 5.00
Book of Nature Hobbies—Pettit	3.50
Canoe Camping—Handel	3.00
Field Book of Nature Activities—Hillcourt	3.95
Let's Go Camping—Zarchy	3.00
Outdoor Guide—Henderson	5.50
Outdoorsman's Cookbook—Carhart	2.49

BOOKS OF GENERAL INTEREST

American Resources—Whitaker & Ackerman	$ 7.50
Beatty's Cabin—Barker	4.50
Conservation Yearbook 1954—Kauffman	6.00
Conservation in the United States—Gustafson, Guise, Hamilton & Ries	5.00
Conservation of Natural Resources—Smith	6.00
Exploring Our National Parks and Monuments—Butcher (Paper $2.50)	4.50
Hunger Signs in Crops—A Symposium	4.50
Legends of Paul Bunyan—Felton	5.00
Our Plundered Planet—Osborn	2.75
Our South—Evans & Donahue	3.50
Reclamation in the United States—Golze	8.50
Road to Survival—Vogt	4.00
Soil Conservation—Bennett	9.50
Tall Timber Pilots—White & Florek	3.50
Vegetation and Watershed Management—Colman	7.00
Water, Land and People—Frank & Netboy	4.50
Western Land and Water Use—Saunderson	3.75

Members of the Association are entitled to a discount of 10% from the publishers price of books on forestry, conservation and related subjects. The above is only a partial listing of such books and you are welcome to order others on the same subjects, whether listed or not.—Publishers prices are subject to change and members will be billed at the current price at time of delivery.

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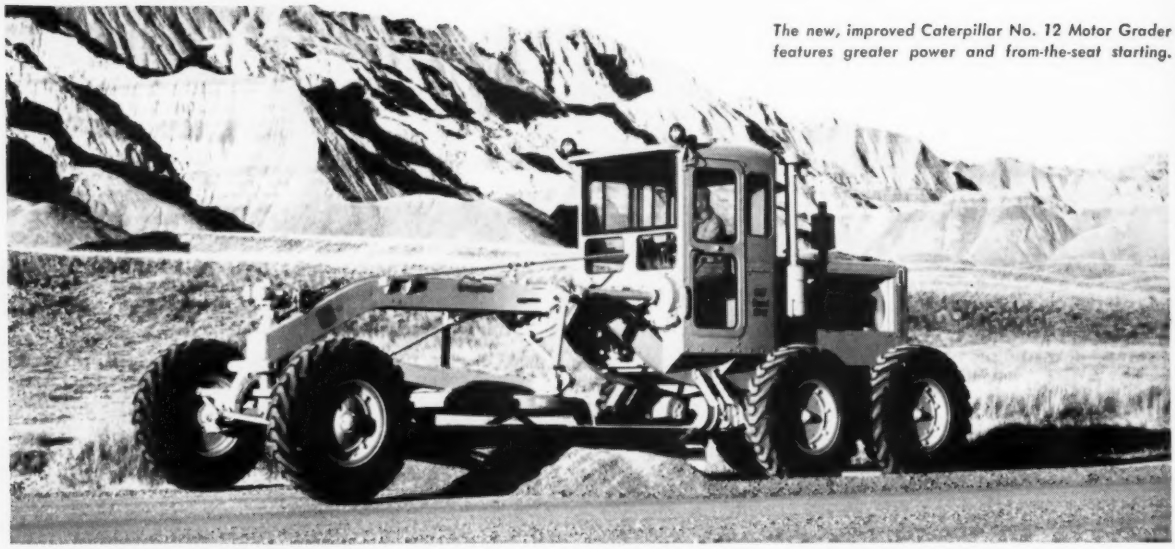

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